

SELECTION & SPECIFICATION DATA

Generic Type	Phenolic epoxy novolac
Description	<p>This product is a solvent-free, high performance epoxy coating designed as an internal tank, valve and pipe lining for chemical or other commodity storage. It is a unique blend of resins and curing agents that allow batch mixing for ease of application. Plural component spray equipment is not required. The product is blush resistant and is typically applied at film thicknesses of 20 mils (500 microns) or thicker as needed (tank floors). It can handle exposures typically seen in the oil and gas industries; crude oils and fuels. It is resistant to NGL condensates, produced water, brines, industrial process water, waste water, and sewage. Ideal for municipal wastewater and water treatment facilities.</p> <p>Phenoline Tank Shield may be used as a patching and seam sealer by adding Carboline Thixatropo D to the pre-mixed kit at a ratio between 2:1 and 1:1 by volume resin:powder.</p>
Features	<ul style="list-style-type: none"> • Batch mix formulation, single leg airless spray • High impact resistance • Superior adhesion to steel • Excellent resistance to water and salt water • Resistance to a broad range of fuels • Passes EI 1541 requirements for internal protective coating systems used in aviation fuel handling systems, including the jet fuel gum test • Adheres to API 653 inspection and API 652 guidelines for inspection intervals. • Resistant to hot water up to 180°F (82°C) • Excellent abrasion resistance and flexibility • Can be applied down to 35 °F (2 °C) • Can be applied as a single or multi-coat system • Non-blushing with a long recoat window • Low odor
Color	Standard: Grey (N700), White (N800), Blue (N100)
Finish	Gloss
Primer	Coating is normally applied direct to metal. May be applied over other primers as recommended by Carboline.
Dry Film Thickness	<p>12 - 30 mils (305 - 762 microns) per coat</p> <p>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 (60+ mils/1500+ microns) are used for more aggressive or abrasive conditions or for severely pitted steel (tank bottoms). Maximum vertical film build is 30 mils (750 microns).</p>
Solids Content	By Volume 99% +/- 1%
Theoretical Coverage Rate	<p>1588 ft²/gal at 1.0 mils (39.0 m²/l at 25 microns) 132 ft²/gal at 12.0 mils (3.2 m²/l at 300 microns) 53 ft²/gal at 30.0 mils (1.3 m²/l at 750 microns) Allow for loss in mixing and application.</p>
VOC Values	As Supplied : 9 g/l
Wet Temp. Resistance	Immersion temperature resistance depends upon exposure, consult Carboline Technical Service for specific information

Phenoline[®] Tank Shield

PRODUCT DATA SHEET



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 SSPC-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.
Stainless Steel	Prepare by abrasive blasting to SSPC-SP 17 Thorough Abrasive Blast to a minimum of 3 mils (75 microns) dense angular anchor profile.
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 may be batch mixed and applied using standard airless spray equipment. IMPORTANT: Power mix each component separately, then combine and power mix until homogenous. Component Details for Colors: Grey (N700): The Part A is black (N909) and the Part B is white (N800) Blue (N100): The Part A is blue (N910) and the Part B is white (N800) White (N800): The Part A is clear (N000) and the Part B is white (N800)
Thinning	Thinning not normally required.
Ratio	1:1 by volume (Part A to Part B)
Pot Life	30 minutes at 75°F (24°C). Consult Carboline Technical Service for techniques to maximize pot life.

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	Airless spray equipment capable of minimum 6000 psi (60:1 ratio or higher is preferred) with a minimum 180 cc lower. Fluid hose shall be minimum 3/8" I.D. Airless spray gun shall be rated minimum 7000 psi utilizing reverse-a-clean tips sizes 0.021-0.027" with fan size range between #5 to #9. A wider tip fan size facilitates break up and reduces fingering. Fixed-ratio (1:1 by volume) plural component equipment may also be used if the material cannot be sprayed within the pot life of the mixed material. Plural spray rig shall have heated hoppers, heated hoses to a mixer manifold through (at least two) static mixers to a 15-25 ft. 3/8" I.D. whip hose. Pre-mix the separate components prior to adding or incorporating into plural component equipment to break the gel. Do not heat material above 110°F (43°C). See "Phenoline Tank Shield Application Guide" for more detailed instructions.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	55°F (13°C)	35°F (2°C)	35°F (2°C)	0%
Maximum	90°F (32°C)	125°F (52°C)	110°F (43°C)	85%

This product 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.	Dry to Handle	Immersion Service (Most Chemical Service)
35°F (2°C)	74 Hours	7 Days
50°F (10°C)	30 Hours	5 Days
75°F (24°C)	10 Hours	3 Days
90°F (32°C)	5 Hours	24 Hours

Dry to Touch and Dry to Recoat is normally 6 hours at 75°F (24°C).

Cure for Service: Cure for service times are dependent on curing conditions and expected immersion exposure. Film hardness (Shore D of 75 or greater) and/or solvent resistance (passes a 25 MEK solvent double-rubs*); are good indications that the lining is suitable for immersion service. Typically this can be from 24-72 hours or longer depending on the curing conditions.

Maximum recoat time is 30 days at 75°F (24°C) and reduces in half for each additional 15°F increase of surface temperature. 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 or #76 are recommended for clean up.

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

PACKAGING, HANDLING & STORAGE

Packaging | 100 gal. kit (378 L)
10 Gal (37.8 L) Kit
4 Gal (15.1 L) Kit

Shelf Life | 12 months

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

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

Flash Point (Setaflash) | Part A: 166 °F (74 °C)
Part B: 204 °F (95 °C)

Phenoline[®] Tank Shield

PRODUCT DATA SHEET



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 Company to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. We guarantee our products to conform to Carboline quality control. We assume no responsibility for coverage, performance, injuries or damages resulting from use. Carbolines sole obligation, if any, is to replace or refund the purchase price of the Carboline product(s) proven to be defective, at Carbolines option. Carboline shall not be liable for any loss or damage. 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.