

SELECTION & SPECIFICATION DATA

Generic Type	Modified Novolac Epoxy
Description	Phenoline 353 LTE is a highly cross-linked epoxy lining with extraordinary overall chemical resistance and versatility. It has a unique blend of resins that make it highly resistant to a variety of aggressive cargoes like ethanol, gasolines, gasoline blends, biodiesel, fuel oils, and others. It can be used in both acidic and high temperature caustic exposures. Markets served are terminals, refineries, petrochemical, wastewater, railcar linings, and many others. This low temperature cure formulation allows application and curing down to 2°C.
Features	<ul style="list-style-type: none"> • Outstanding overall chemical resistance • Dense, highly cross-linked film for superior barrier protection • Excellent abrasion resistance and toughness • Well-suited for hydrocarbon exposures • Cures down to 2°C <p>For a comprehensive list of chemical resistance see the latest Phenoline 353 Series Chemical Resistance Chart.</p>
Colour	Gray (0700), White (0800)
Finish	Gloss (70-85)
Dry Film Thickness	<p>127 - 152 microns (5 - 6 mils) per coat</p> <p>Two coats are generally recommended to 250-300 microns total DFT. Refer to relevant specification for specific system DFT / exposure requirements.</p>
Solids Content	By Volume 76% +/- 2%
HAPs Values	<p>As supplied: 161 g/l</p> <p>These are nominal values and may vary by colour.</p>
Theoretical Coverage Rate	<p>29.9 m² at 25 microns (1219 ft² at 1.0 mils) 6.0 m² at 125 microns (244 ft² at 5.0 mils) 5.0 m² at 150 microns (203 ft² at 6.0 mils)</p> <p>Allow for loss in mixing and application.</p>
VOC Values	<p>As Supplied : 197 g/l</p> <p>These are nominal values and may vary slightly with colour.</p>
Dry Temp. Resistance	<p>Continuous: 121°C (250°F) Non-Continuous: 149°C (300°F)</p> <p>Discolouration and loss of gloss is observed above 93°C.</p>
Limitations	<p>Linings exposed to cargoes warmer than the outside steel temperature are subject to a "cold-wall" effect. The smaller the temperature differential the less negative effect on performance.</p> <p>Tanks for warm cargoes should always be checked for adequate thermal insulation to minimise the thermal gradient between the cargo and the tank wall</p> <p>Epoxies lose gloss, discolour and eventually chalk in sunlight exposure.</p>

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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 in accordance with SSPC SP1.
Steel	Immersion: Abrasive blast to SSPC-SP10 (AS1627.4 Sa 2½) and achieve a uniform jagged blast profile of between 50µm (minimum) and up to 75µm. Non-Immersion: Minimum SSPC SP6 (AS1627.4 Class 2) Surface Profile: 50-75 microns
Concrete or CMU	Immersion: Concrete must be cured 28 days at 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; refer to Carboline Technical Services for details if not fully covered in the coating specification.

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. Use material immediately after mixing. DO NOT MIX PARTIAL KITS.
Thinning	May be thinned up to 10% with Thinner #2. 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	1 hour at 24°C. Pot life ends when coating shows dramatic changes in viscosity. 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)	The following spray equipment has been found suitable and is available from manufacturers.
Conventional Spray	Pressure pot equipped with dual regulators, 9.5 mm (3/8") I.D. minimum material hose, 1.8 mm (0.070") I.D. fluid tip and appropriate air cap.
Airless Spray	Pump Ratio: 30:1 (min.)* Output: 12 lt/minute (min.) Material Hose: 9.5 mm (3/8") I.D. (min.) Tip Size: 0.015-0.019" Output PSI: 2100-2300 Filter Size: 60 mesh *PTFE 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.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	16°C (60°F)	2°C (35°F)	2°C (35°F)	0%
Maximum	32°C (90°F)	43°C (110°F)	38°C (100°F)	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.	Final Cure Immersion	Maximum Recoat Time	Minimum Recoat Time
2°C (35°F)	15 Days	10 Days	18 Hours
10°C (50°F)	10 Days	7 Days	12 Hours
16°C (60°F)	7 Days	5 Days	8 Hours
24°C (75°F)	5 Days	3 Days	6 Hours
32°C (90°F)	3 Days	1 Days	4 Hours

These times are based on a 125-175 micron dry film thickness and adequate ventilation for the release of solvents for proper cure. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment, delamination between coats 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 prior to the application of additional coats.

Note: It is strongly recommended to cure above 16°C for aggressive service.

Surface Temp.	Final Cure Immersion
66°C (150°F)	8 Hours

Forced Cure Schedule

The above curing schedule may be used to force cure the coating system as detailed below:

1. Allow the freshly applied coating to air dry, with ambient / substrate temperature >16°C, for 4 hours prior to elevating temperature.
2. Elevate temperature no more than 15°C every 30 minutes (to allow controlled solvent release & avoiding solvent 'boil').
3. Hold the tank wall substrate at the required 66°C for 8 hours

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.
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 vapour 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 local electrical code. In areas where explosion hazards exist, workers should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

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PACKAGING, HANDLING & STORAGE

Shelf Life	Part A & B: Min. 24 months at 24°C *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Shipping Weight (Approximate)	<u>10 Litre Kit</u> : 16.9 kg
Storage Temperature & Humidity	4°-43°C 0-90% RH
Flash Point (Setaflash)	Part A: 27°C Part B: 13°C Mixed: 32°C
Storage	Store Indoors.

WARRANTY

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