

## Selection & Specification Data

<b>Generic Type</b>	Micaceous iron oxide filled; Novolac Epoxy Phenalkamine Primer
<b>Description</b>	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 can also be used direct to metal as a corrosion resistant primer 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.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Low temperature cure (-7°C)</li> <li>• Excellent blast-hold protection</li> <li>• Excellent application characteristics</li> <li>• Fast recoat times</li> <li>• Moisture tolerance during application</li> <li>• Meets VOC restrictions</li> <li>• Low HAPS content</li> </ul>
<b>Gloss</b>	Flat
<b>Colour</b>	Red
<b>Primers</b>	Self priming
<b>Topcoats</b>	Topcoat selection will depend on exposures
<b>Dry Film Thickness</b>	For most applications: 50-75 microns per coat For NSF 61 (Potable Water) application service do not exceed 75 microns
<b>Solids Content</b>	Theoretical solids (mixed) by volume: SBV: 47 +/- 2%
<b>Theoretical Coverage Rate</b>	18.5 m <sup>2</sup> /l at 25 microns 7.4 sq. m/l @ 62 microns NOTE: Material losses during mixing and application will vary and must be taken into consideration when estimating job requirements.
<b>Mix Ratio</b>	3:1 by volume (Part A : Part B)
<b>VOC Values (calculated)</b>	As supplied: 270 g/l mixed VOC (EPA Method 24): 336 g/l mixed Thinned 5% with # 225E: 336 g/l Thinned 5% with #2: 359 g/l These are nominal values
<b>Dry Temp. Resistance</b>	Continuous: 82°C Non-Continuous: 104°C
<b>Limitations</b>	Epoxies lose gloss, discolour and eventually chalk in sunlight exposure.

## Substrates & Surface Preparation

<b>General</b>	Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2, or toluol.
<b>Steel</b>	<p><b>For immersion applications:</b> Abrasive blast to a Near-White Metal Finish in accordance with AS 1627.4 Class 2½ (SSPC SP 10) and obtain a 62-100 micron blast profile.</p> <p><b>For non-immersion applications:</b> Abrasive blast to a Commercial Finish in accordance with AS 1627.4 Class 2 (SSPC-SP 6) and obtain a 35-50 micron blast profile for moderate to severe exposures.</p> <p><b>For mild environments;</b> Hand Tool or Power Tool clean in accordance with SSPC-SP 2, SSPC-SP 3, or SSPCSP 11 or equivalent standards to produce a rust-scale free surface.</p> <p>For applications over damp surfaces, brush and roller is the preferred method.</p>

## 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:**

<b>Spray Application (General)</b>	Hold gun 300-350 mm from the surface and at a right angle to the surface.										
<b>Conventional Spray</b>	Pressure pot equipped with dual regulators, 9mm (3/8") I.D. minimum material hose, 1.8mm (.070") I.D. fluid tip and appropriate air cap.										
<b>Airless Spray</b>	<table border="0"> <tr> <td>Pump Ratio:</td> <td>30:1 minimum*</td> </tr> <tr> <td>Volume Output:</td> <td>12 litre/min minimum</td> </tr> <tr> <td>Material Hose:</td> <td>9mm (3/8" I.D.) min.</td> </tr> <tr> <td>Tip Size:</td> <td>0.4-0.5mm (0.015-0.019")</td> </tr> <tr> <td>Output Pressure:</td> <td>14-21 MPa (2000-2500 psi)</td> </tr> </table> <p>*Teflon packings are recommended and available from pump manufacturer.</p>	Pump Ratio:	30:1 minimum*	Volume Output:	12 litre/min minimum	Material Hose:	9mm (3/8" I.D.) min.	Tip Size:	0.4-0.5mm (0.015-0.019")	Output Pressure:	14-21 MPa (2000-2500 psi)
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Output Pressure:	14-21 MPa (2000-2500 psi)										
<b>Brush &amp; Roller (General)</b>	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 24°C. Use a short-nap synthetic roller cover with phenolic core.										

# Phenoline® 311

## Mixing & Thinning

**Mixing & Thinning** Mix separately, then combine and mix in the following proportions (3:1 ratio):

**1 US Gal. Kit      4 US Gal. Kit**  
Part A    .75 gallon      3 gallon  
Part B    .25 gallon      1 gallon

Thinning not normally required. May be thinned up to 5% v/v with Carboline Thinner #2 or VOC 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 back in.

**Ratio** 3:1 by volume (Part A : Part B)

**Pot Life** 3 hours at 24°C and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

## 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 vapour 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, OSH approved supplied air respirator.

**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 relevant electrical 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
Optimum	16-24°C	16-24°C	16-24°C	30-70%
Minimum	7°C	-7°C	-7°C	0%
Maximum	32°C	57°C	35°C	85%

Industry standards are for substrate temperatures to be above the dew point. Phenoline 311 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. & 50% Relative Humidity	Dry to Topcoat Minimum*	Dry to Handle	Maximum Recoat Time
-7°C	24 hours	36 hours	45 days
2°C	2 hours	16 hours	45 days
10°C	1 hour	10 hours	30 days
24°C	30 min.	3 hours	30 days
32°C	30 min.	1½ hours	15 days

\*Note: Minimum cure time for NSF 61 application is 7 days.

These times are based on a 50-75 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 2°C, 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.

## Packaging, Handling & Storage

### Pack Sizes

**Flash Point (Setflash)** Part A: 15°C  
Part B: 23°C  
Thinner 2: -20°C

**Storage Temperature & Humidity** Store under cover. KEEP DRY  
4°C-38°C  
0-95% Relative Humidity

**Shelf Life** Part A: 12 months at 24°C  
Part B: 24 months at 24°C

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

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