

## SELECTION & SPECIFICATION DATA

<b>Generic Type</b>	100% solids, high performance, novolac epoxy liner
<b>Description</b>	Semstone 245 is a 100% solids, high performance, novolac epoxy lining system designed for concrete. Semstone 245 is a semileveling coating, it may be applied as an aggregate filled and/or reinforced coating system. Semstone 245 is specially formulated to withstand some of the industry's most aggressive chemicals, including chlorinated solvents.
<b>Features</b>	<p>Excellent resistance to chemical attack Excellent abrasion and impact resistance Exceptional thermal shock resistance Superior bonding qualities High cohesive strength Low permeability Low odor Formulated to resist a variety of chemical solutions.</p> <p>Please consult Carboline Technical Service Department for specific recommendations.</p>
<b>Typical Uses</b>	<ul style="list-style-type: none"> <li>• Process Slabs</li> <li>• Tank Farm Floors</li> <li>• Chemical Loading and Unloading Areas</li> <li>• Spill Containment Areas</li> </ul>
<b>Color</b>	U74P (Light Grey)
<b>Primer</b>	<p>Apply Semstone 110 Primer in accordance with the product data sheet. Allow the primer to cure prior to application of Semstone 245.</p> <p><b>Note:</b> For substrates with out-gassing concerns use Carboguard 1340. Primer should be applied while the substrate temperature is decreasing.</p>
<b>Dry Film Thickness</b>	<b>See Application Procedures</b>
<b>Solid(s) Content</b>	100% by volume
<b>Coverage Rate</b>	<p>Semstone 245 will cover 1,604 sq. ft. at 1 mil DFT per gallon (39.4 sq. m/l). With aggregate included application thickness may vary from 30 to 150 mils (0.75-3.8 mm), depending on expected service conditions and system design.</p> <p>See Application Procedures for more specific coverage information.</p>
<b>VOC Values</b>	<b>As Supplied</b> : 0.01 lbs/gal (1 g/l)

## SUBSTRATES & SURFACE PREPARATION

<b>General</b>	<p>Proper preparation is critical to ensure an adequate bond. The substrate must be dry and free of all wax, grease, oils, fats, soil, loose or foreign materials and laitance. Laitance and unbonded cement particles must be removed by mechanical methods, i.e., abrasive blasting or scarifying. Other contaminants may be removed by scrubbing with a heavy-duty industrial detergent and rinsing with clean water.</p> <p>For recommendations or additional information regarding substrate preparation, please contact Carboline's Technical Service Department.</p>
<b>Steel</b>	Equipment base plates, etc. to be coated along with the concrete should be abrasive blasted to a near white metal finish, SSPC-10 or NACE-2, with a 1 to 2 mils anchor profile.

### SUBSTRATES & SURFACE PREPARATION

**Concrete or CMU** | Concrete shall be designed, placed, cured, and prepared per NACE No. 6/SSPC-SP 13, latest edition. Abrade to remove all laitance, loose concrete, etc. and to create surface profile in accordance with the appropriate ICRI CSP standard for the coating system. The concrete is considered cured sufficiently for coating when it passes the moisture tests.

**Special Instruction** | Mask surfaces that are not to be coated. This material is difficult to remove once applied.

### PERFORMANCE DATA

**All test data was generated under laboratory conditions. Field testing results may vary.**

Test Method	System	Results
Bond Strength (ASTM D-4541)	Semstone 245	>400 psi (100% concrete failure)
Compressive Strength (ASTM C-579: AFC)	Semstone 245	18,000 psi
Flammability	Semstone 245	Non-flammable
Flexural Modulus of Elasticity (ASTM D-790) (ASTM C-580)	Semstone 245	Neat: $8.1 \times 10^5$ psi Reinforced: $9.4 \times 10^5$ psi Aggregate Filled: $14.9 \times 10^5$ psi
Flexural Strength (ASTM D-790) (ASTM C-580)	Semstone 245	Neat: 11,000 psi Neat: 11,000 psi Aggregate Filled: 6,000 psi
Hardness (ASTM D-2240, Shore D)	Semstone 245	Neat: 80
Permeability (ASTM E-96)	Semstone 245	0.0042 perm. -in.
Tensile Strength (ASTM D-638)	Semstone 245	Reinforced: 8,000 psi
Water Vapor Transmission (ASTM E-96)	Semstone 245	0.0120 grams/hr./ft <sup>2</sup>

### MIXING & THINNING

**Working Time** | 15 minutes @ 75 °F (24 °C)  
Significantly less at elevated temperatures

### APPLICATION PROCEDURES

**General** | Before mixing and applying any material, make sure environmental conditions are satisfactory for application. For optimal working conditions, substrate temperature must be between 50 °F (10 °C) and 70 °F (21 °C). Measure the surface temperature with a surface thermometer. Cold areas must be heated until the slab temperature is above 35 °F (2 °C). This will allow the material to achieve a proper cure.  
Warm areas or areas in direct sunlight must be shaded or arrangements made to work during evenings or at night. A hot substrate (70 °F [21 °C] to 100 °F [37 °C]) or a substrate directly in the sun will shorten the material's working time and can cause other phenomenon such as pinholing and bubbling.

Note: A cold substrate will make the material stiff and difficult to apply

## APPLICATION PROCEDURES

### Broadcast

**(AFC):** Pre-mix Part A (resin) for 30 seconds using a Jiffy Mixer. Pour Part B (hardener) into the Part A pail and mix thoroughly for 2 minutes. Apply a base coat at the specified thickness using a squeegee or a notched trowel. For a 60 mil (1.5 mm) system apply a 25 mil (0.63 mm) base coat and for a 125 mil (3.1 mm) system apply a 50 mil (1.3 mm) base coat. Immediately after applying the base coat begin broadcasting the aggregate until a dry appearance is achieved. **Note:** The use of a Broadcast Sand (SKU 170D) 20/40 mesh aggregate is highly recommended. One gallon of Broadcast Sand (SKU 170D) 20/40 mesh silica weighs 13-14 lbs (5.9-6.4 kg).  
 After the base coat has cured, remove the loose aggregate. Apply a 10-15 mil (0.25-0.38 mm) topcoat using a squeegee or roller.

### Blended

**(AFC):** Pre-mix Part A (resin) for 30 seconds using a Jiffy Mixer. Pour Part B (hardener) into Part A and thoroughly mix for 2 minutes. After mixing Part A and Part B, split the mix into two 5 gallon buckets. While continuing to mix with a Jiffy Mixer, slowly add the aggregate.  
**Note:** A 2:1 sand to liquid weight ratio will produce a trowel-like consistency. A 3:1 sand to liquid weight ratio will produce a grout-like consistency.  
**Note:** The use of a Broadcast Sand (SKU 170D) 20/40 mesh silica aggregate is highly recommended. One gallon of Broadcast Sand (SKU 170D) 20/40 mesh silica weighs 13-14 lbs (5.9-6.4 kg).  
 Apply the mixture at the desired thickness using a notched trowel.  
**Note:** For vertical surfaces add Semstone Thixotrope Part C (pre-measured mixes) or Cab-O-Sil (TS 720) to the blended mix at a 1:2 Cab-O-Sil to liquid volume ratio.  
 After the surface has cured, the surface must be washed with soap and water prior to re-coating.  
**Note:** Surface must be sanded prior to re-coating after an initial cure of 24 hours.

### Reinforced

**(AFRC - Broadcast):** A fiberglass scrim cloth may be added to the 125 mil broadcast system. For the 125 mil broadcast system apply the fiberglass scrim cloth into the base coat prior to applying the aggregate.  
**(AFRC - Blended):** A fiberglass scrim cloth may be added to the 125 mil blended system. For the 125 mil blended system apply a 25-35 mil (0.63-0.88 mm) base coat and lay the fiberglass scrim cloth into the base coat.  
**Note:** For a vertical surface, the base coat should be mixed with Cab-O-Sil (TS 720) at a 1:1 volume ratio.  
 Allow the base coat to become tacky and then apply Semstone 245 mortar at 90-100 mils (2.25-2.50 mm).  
**Note:** Application of base coat, engineering fabric, and mortar should be completed in the same day.

## APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	60°F (16°C)	35°F (2°C)	35°F (2°C)	0%
Maximum	75°F (24°C)	90°F (32°C)	90°F (32°C)	90%

Substrate temperature should be greater than 5 °F (3 °C) above dew point. Application and curing times are dependent upon ambient and surface conditions. Consult Carboline's Technical Service Department if conditions are not within the recommended guidelines.

## CURING SCHEDULE

Surface Temp.	Dry to Touch	Firm	Chemical Service
75°F (24°C)	12 Hours	24 Hours	36 Hours

### CLEANUP & SAFETY

<b>Cleanup</b>	MEK, Toluene or Xylene solvents are recommended for clean up of Semstone 245 material spills. Use these materials only in strict accordance with manufacturer's recommended safety procedures. Dispose of waste materials in accordance with government regulations.
<b>Safety</b>	Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.
<b>Ventilation</b>	The use of a NIOSH/MSHA approved respirator using a #TC-23C-738 organic vapor or a #TC-23C-740 organic vapor acid gas cartridge is mandatory.

### PACKAGING, HANDLING & STORAGE

<b>Packaging</b>	<u>3 gal kit:</u> Part A - 2.5 gals (9.46 liters) Part B - 0.59 gals (2.23 liters)
<b>Shelf Life</b>	24 months
<b>Storage Temperature &amp; Humidity</b>	Store all components between 50-70 °F (10-21 °C) in a dry area.  Twenty-four hours before application, all materials (components A and B, aggregate, etc.) should be stored at a 65-75 °F (18-24 °C) to facilitate handling.
<b>Storage</b>	Keep out of direct sunlight. Avoid excessive heat and do not freeze.
<b>Shipping Weight (Approximate)</b>	3 Gallon Kit - 38.42 lbs (17.4 kg)
<b>Flash Point (Setaflash)</b>	Part A: 210.2 °F (93 °C) Part B: 275 °F (135 °C)

### 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 to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. Carboline warrants our products to be free of manufacturing defects in accord with applicable Carboline quality control procedures. THIS WARRANTY IS NOT VALID WHEN THE PRODUCT IS NOT: (1) APPLIED IN ACCORDANCE WITH CARBOLINE'S SPECIFICATIONS, AND/OR (2) PROPERLY STORED, CURED, AND USED UNDER NORMAL OPERATING CONDITIONS. Carboline assumes no responsibility for coverage, performance, injuries, or damages resulting from use of the product. If this product is found not to perform as specified upon inspection by a Carboline representative during the warranty period, Carboline's sole obligation, if any, is to replace the Carboline product(s) proven to be defective or refund the purchase price thereof, at Carboline's sole option. Carboline shall not be liable for any other losses or damages. This warranty excludes (1) labor and costs of labor for the application or removal of any product, and (2) any incidental or consequential damages, whether based on breach of express or implied warranty, negligence, strict liability or any other legal theory. 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. The whole text of this Product Data Sheet, as well as the documents derived from it, have been written in English, and for legal purposes the English version shall prevail.