

### PRODUCT DESCRIPTION

Semstone 140SL is a 100% solids, high performance, epoxy coating designed for concrete. Semstone 140SL is a self-leveling coating which may be applied as a neat, aggregate filled and/or reinforced coating system. Semstone 140SL is specially formulated to withstand some of industry's most aggressive chemicals.

### USES, APPLICATIONS

- Process Areas
- Tank Farm Floors
- Production Areas
- Spill Containment Areas
- Light Manufacturing

### PRODUCT ADVANTAGES

Semstone 140SL is a two-component system that possesses the following characteristics:

- Excellent resistance to chemical attack
- Excellent abrasion and impact resistance
- Exceptional thermal shock resistance
- Superior bonding qualities
- High cohesive strength
- Low permeability
- Low odor

### CHEMICAL RESISTANCE

Semstone 140SL is formulated to resist a variety of chemical solutions. Please consult Carboline Technical Service Department for specific recommendations.

### PACKAGING

Semstone 140SL has a 2.2:1 mix ratio by volume and is available in 1 gallon and 5 gallon units.

A 1 gallon unit consists of:

- 1 gallon metal can of Part A (resin) (partially filled)
- 1 gallon metal can of Part B (hardener) (partially filled)

A 5 gallon unit consists of:

- 5 gallon plastic pail of Part A (resin) (partially filled)
- 3 gallon metal can of Part B (hardener) (partially filled)

### COVERAGE

Semstone 140SL will cover 1,604 mils sq. ft./gal. For estimating purposes, one gallon of Semstone 140SL will cover 64 sq. ft./5.96 sq. m at a thickness of 25 mils/0.63 mm. Application thickness may vary from 30-150 mils/0.75-3.8 mm, depending on expected service conditions (i.e., chemical exposure, temperature, traffic load and other mechanical abuse, immersion service vs. splash-spill, etc.). Consult Carboline's Technical Service Department for specific thickness recommendations. In addition, coverage rates will be affected by the condition of the surface being coated (degraded vs. smooth, steel vs. concrete, etc.).

### STORAGE CONDITIONS

Store all components between 50-75°F/10-24°C in a dry area. Keep out of direct sunlight. Avoid excessive heat and do not freeze. The shelf life is one year in the original, unopened container.

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### PHYSICAL CHARACTERISTICS

**Compressive Strength**.....13,500 psi (ASTM C-579: AFC)

**Tensile Strength**.....Neat: 5,500 psi  
(ASTM D-638) Reinforced: 7,800 psi

**Flexural Strength**.....Neat: 7,200 psi  
(ASTM D-790) Reinforced: 13,000 psi  
(ASTM C-580) Aggregate Filled: 5,300 psi

**Flexural Modulus of Elasticity**.....Neat:  $3.5 \times 10^5$  psi  
(ASTM D-790) Reinforced:  $6.1 \times 10^5$  psi  
(ASTM C-580) Aggregate Filled:  $9.7 \times 10^5$  psi

**Hardness**..... Neat: 70 (ASTM D-2240, Shore D)

**Bond Strength**.....> 400 psi  
(ASTM D-4541) (100% concrete failure)

**Water Vapor Transmission**.....0.0120 grams/hr./ft<sup>2</sup> (ASTM E-96)

**Permeability**.....0.0042 perm. -in. (ASTM E96)

**Weight per Mixed Gallon**.....9.9 lbs.

**Pot Life @ 75°F**.....45 to 60 min.\*

**Cure Times @ 75°F**.....Dry to Touch: 12 hrs  
Firm: 24 hrs  
Chemical Service: 36 hrs

**Flammability**.....Non-flammable

\* Significantly less at elevated temperatures

Twenty-four hours before application, all materials (components A and B, aggregate, etc.) should be stored at a 70-85°F/21-29°C to facilitate handling.

### SUBSTRATE PREPARATION

#### General

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. For recommendations or additional information regarding substrate preparation, please contact Carboline's Technical Service Department.

#### Concrete

Concrete should be properly cured for a minimum 28 days and have the following characteristics:

- Substrate tensile strength of at least 300 psi.
- pH in the range of 7 to 11.

The surface must show open pores throughout and have a sandpaper texture. Refer to SSPC-SP13 / NACE 6

#### Steel

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.

#### Masking

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

# Semstone® 140 SL

## APPLICATION GUIDELINES

Before mixing and applying any material, make sure environmental conditions are satisfactory for application. For optimal working conditions, substrate temperature must be between 60-80°F/15-27°C. Measure the surface temperature with a surface thermometer. Cold areas must be heated until the slab temperature is above 50°F/10°C. This will allow the material to achieve a proper cure. Also, a cold substrate will make the material stiff and difficult to apply. Warm areas or areas in direct sunlight must be shaded or arrangements made to work during evenings or at night. A warm substrate (60-80°F/15-27°C) will aid in the material's workability; however, a hot substrate (80-100°F/27-37°C) or a substrate directly in the sun will shorten the material's working time and can cause other phenomenon such as pin-holing and bubbling. Substrate temperature should be greater than 5°F/3°C above dew point.

If the temperature is expected to drop below 50°F/10°C use Semstone 140CT.

## APPLICATION

### Priming

Semstone 110 Primer must be used prior to the application of Semstone 140SL. Apply Semstone 110 Primer at a rate of 250-300 sq. ft. / 1.5 gal unit.

**Note:** For substrates where out-gassing would be a concern, use Carboguard 1340. Primer should be applied while the substrate temperature is decreasing. Two coats may be required to 'help' prevent out-gassing of the substrate

### Neat Application: Smooth Surface, Easily Cleanable 25 – 30 mils

A neat application can be applied in 1 or 2 coats to a minimum finished thickness of 25-30 mils.

If applied in two coats, allow the first coat to cure, then sand with a 40-60 grit sandpaper prior to applying the second coat.

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 Semstone 140SL at the desired thickness using a notched squeegee. Back roll with a medium nap roller. Pin-roll the Semstone 140SL with a spiked roller, this will assist in air release from the coating.

### Broadcast Application AFC (Aggregate Filled Coating) Provides a Non-skid Surface @ 60 mils and 125 mils

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, evenly to excess, until a dry appearance is achieved.

**Note:** The use of a 20/40 or 30/60 U.S. mesh size (kiln dried and bagged) aggregate is highly recommended. One gallon of 20/40 or 30/60 mesh silica weighs approx. 13-14 lbs.

After the base coat has cured, remove the excess aggregate. Apply a 15-20 mil/0.38-0.5 mm topcoat using a squeegee or flat rowel and back-roll with a medium nap roller.

**Note:** The surface must be sanded prior to re-coating after an initial cure of 24 hours.

For vertical surfaces, blend Semstone 140SL with 3 qts – 1 gallon of 80/120 U.S. mesh size silica (kiln dried and bagged) with ½ gallon of Semstone Thixotrope part "D". Trowel apply to a thickness of 30-40 mils. Trowel marks can be removed with odorless mineral spirits.

### Slurry System: Durable and Easily Cleanable Surface @ 50-60 mils

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.

Blend Semstone 140SL with 3 qts of 40/60 U.S. mesh size silica (kiln dried and bagged). Pour the blended material in a ribbon onto the properly prepared and primed substrate. Use a notched squeegee to evenly spread out the material. Back-roll with a "loop" roller. Wait 15 – 20 minutes and finish the system by pin-rolling the surface to release air. Watch the surface air bubbles. Continue pin-rolling the surface if necessary to remove air.

**NOTE:** Semstone 140SL can also be applied as an AFRC (Aggregate Filled and Reinforced Coating) system.

Contact Carboline's Technical Service Department for specific system application guidelines.

## RECOMMENDATIONS

- Apply only on clean, sound, dry and properly prepared substrates.
- Minimum ambient and surface temperatures are 50°F/10°C at the time of application.
- Maximum surface temperatures should not exceed 90°F/32°C during the time of application.
- 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.

## PRECAUTIONS

- MEK, Toluene or Xylene solvents are recommended for clean up of Semstone 140SL material spills. Use these materials only in strict accordance with the manufacturer's recommended safety procedures. Dispose of waste materials in accordance with government regulations.
- 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.
- The selection of proper protective clothing and equipment will significantly reduce risk to injury. Body covering apparel, safety goggles and impermeable gloves are highly recommended.
- In case of contact, flush the area with water for 15 minutes and seek medical attention. Wash skin with soap and water.
- Use only with adequate ventilation.

## NOTES

- Material Safety Data Sheets on Semstone 140SL are available on request.
- Specific information regarding chemical resistance of Semstone 140SL is available in the Semstone Chemical Resistance Guide
- A staff of technical service engineers is available to assist with product application or to answer questions related to Carboline products.
- Requests for technical literature or service can be made through local sales representatives and offices, or corporate offices located worldwide.



350 Hanley Industrial Court, St. Louis, MO 63144-1599  
314/644-1000 314/644-4617 (fax) www.carboline.com

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