Semstone 300

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Description	Semstone 300/305 polymer concretes are excellent alternatives to acid brick. They are used to protect Portland cement concrete from attack from a wide range of aggressive chemicals. Semstone 300/305 polymer concretes can be applied from 1/2" to several inches thick. Applied by screed and trowel method, their installation is quick and easy. They provide a monolithic surfacing that has excellent resistance to impact and mechanical abuse and can be used to restore and protect degraded surfaces in a single application. Semstone 300/305 are castable, and make excellent materials of construction. Common uses are pouring pump foundations and pre-casting of sumps and trenches. Semstone 300/305 polymer concretes are easy to apply, nonflammable and have low odor.
Color	Gray
Finish	N/A
Primer	All surfaces to which Semstone 300/305 will be applied must be primed, including steel as well as concrete. Use only Semstone 110 Damp Proof Epoxy Primer. Mix and apply in accordance with instructions found in our data sheet on Semstone 110 Damp Proof Epoxy Primer. Immediately apply Semstone 300/305, while the primer is still wet. If the primer cures tack free, you must reprime.
Topcoats	Not Applicable

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be dry and free of dirt, dust, oil, grease, chemicals and other contaminants immediately prior to applying primer or Semstone 300/305.
Concrete or CMU	1. Immediately prior to application of coating, concrete substrate must be: Adequately cured (generally, at least 28 days; check with Carboline Company if concrete has cured less than 28 days) Structurally sound. Free of all dirt, dust, debris, oil, grease, fats, chemical contamination, salts, solvents, surface hardeners, incompatible curing compounds and form release agents, Latinate and efflorescence. Concrete surfaces must be dry. and must have: Tensile strength of at least 300 psi. pH in the range of 7 to 11. All fins, projections and splatter removed. All defects repaired using patching as described herein. Failed or otherwise incompatible old coatings removed. A surface texture similar to medium sandpaper (40 to 60 grit). Refer to Carboline's separate document "Surface Preparation – Concrete" for further instruction in the preparation of concrete surfaces. 2. Locate all expansion joints, controls joints, floor drains, equipment base plates, and mid-floor termination points. Handle them as per Carboline's separate document "Construction Details".
Special Instruction	Mask surfaces that are not to be coated. These materials are difficult to remove, once applied.

PERFORMANCE DATA

Test Method	Results
Coefficient of Thermal Expansion	20 x 10^-6 in/in °F (ASTM C-531)
Compressive Strength	15,000 – 20,000 psi (ASTM C-579)
Density	125 lbs/cu. ft.
Effective Shrinkage (glass deflection)	No deflection (ASTM C-883)
Flammability	Non-flammable
Flexural Strength	7,000 – 8,000 psi (ASTM C-580)
Hardness	Neat: 75 (ASTM D-2240, Shore D)
Min. Application Thickness	1/2 inch
Shrinkage	Essentially none (ASTM C-531)
Tensile Strength	5,000 – 6,000 psi (ASTM C-307)
Thermal Compatibility to Concrete	Passes (ASTM C-884)
Water Boil Absorption	Less than 0.2% (ASTM C-413)
Working Time @ 75°F	45 minutes

MIXING & THINNING

Mixing

1. Determine the number of units of Semstone 300/305 to be mixed in the batch. Mix only as much material as can be placed and finished before material begins to set. XAUTION: At elevated temperatures, or in direct sunlight, working time will be significantly reduced. 2. Use a horizontal blade mortar mixer with at least twice the volume capacity of the material to be mixed (i.e., if mixer capacity is 10 cu. ft., mix no more than 5 cu. ft. of material in a batch.) CAUTION: Be sure your mixture runs before adding these ingredients. These are catalyzed epoxy materials that will rapidly set up inside your mixer. 3. Mixer should be dry and clean of all foreign matter. 4. Mixer should be in good condition and rubber blades on ends of mixing arms should make full contact with mixing tub. 5. The following are the component measurements that, when mixed together, will yield a two cubic foot batch of polymer concrete: Semstone 300/305 Part A: 25 lbs. Semstone 300/305 Part B: 3.6 lbs. Semstone polymer concrete powder: 70 lbs. *¼" pea-gravel: 130 lbs. *20/40 mesh silica sand: 50 lbs. *These materials are user/contractor supplied. IMPORTANT: All aggregates must be clean, dry and supplied in plastic lined bags. 6. In a clean pail, mix together the properly proportioned Part A and Part B. Mix for 2 minutes using a power mixer with a Jiffy type mixer attached. 7. Turn on the mortar mixer. Be sure that the safety cover is closed. As it is running, pour in all of the mixture. Be sure to scrape all the mixture from the bucket. 8. Slowly add the ¼" pea-gravel, followed by the polymer concrete powder, followed by the 20/40 mesh silica sand. Continue to mix until no dry aggregate appears. 9. Discharge the mixed material into a clean wheel-barrow, turn the mixer off, and scrape it clean. Note: The first batch may be drier and stiffer than succeeding batches. This is to be expected and does not effect performance.

CURING SCHEDULE

Surface Temp.	Chemical Service	Foot Traffic	Light Vehicular
24°C (75°F)	36 Hours	8 Hours	24 Hours

CLEANUP & SAFETY

Cleanup | Clean all tools and equipment with Plasite Thinner #15, #20 or #71.

PACKAGING, HANDLING & STORAGE

Shelf Life | Properly stored, Semstone 300/305 has a minimum shelf life of one year. Refer to batch number on label for date of manufacture.

PACKAGING, HANDLING & STORAGE

Storage Temperature & Humidity	Keep all Semstone 300/305 components tightly sealed in their original containers until ready for use. Store at 50-75°F, out of direct sunlight. Keep aggregate dry.

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.