

SELECTION & SPECIFICATION DATA

Generic Type	Non-shrink vinyl ester polymer concrete
Description	Semstone 884 is a vinyl ester polymer concrete which incorporates proprietary non-shrink technology into its formulation, making it the first practical vinyl ester polymer concrete for use as a concrete topping. It is recommended for use in concentrated nitric acid service and other strong oxidizers. Semstone 884 is an excellent alternative to acid brick. It is also used as a construction material for pouring pump foundations and small tank foundations. It can be used for pre-casting of sumps and trenches.
Features	Excellent alternative to acid brick
Color	Grey
Primer	Semstone 8084 Primer All surfaces to which Semstone 884 will be applied must be primed, including steel as well as concrete. Use only Semstone 8084 Primer. Mix and apply in Accordance with instructions found in our technical bulletin on Semstone 8084 Primer. Apply one coat of primer. Allow to cure before applying Semstone 884 Vinyl Ester Polymer Concrete.
Application Thickness	Minimum 1/2 inch (2.54 cm) Application thickness depends upon expected service conditions. Consult Carboline Technical Service or your local representative for specific recommendations.
Dry Film Thickness	0.5 - 1 inches (12700 - 25400 microns) per coat Coverage rates are effected by the condition of the surface being topped.
Typical Uses	<ul style="list-style-type: none"> • As a concrete topping • Concentrated nitric acid service • As a construction material for pouring pump foundations and small tank foundations • Pre-casting of sumps and trenches
Solids Content	By Volume 100%
Theoretical Coverage Rate	1600 ft ² /gal at 1.0 mils (39.3 m ² /l at 25 microns) 3 ft ² /gal at 500.0 mils (0.1 m ² /l at 12500 microns) 2 ft ² /gal at 1000.0 mils (0.0 m ² /l at 25000 microns) Allow for loss in mixing and application.
VOC Values	As Supplied : 1 g/l

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be dry and free of dirt, dust, oil, grease, chemicals and all other contaminants immediately prior to applying primer of Semstone 884.
Steel	Incidental Steel Equipment base plates, etc. to be coated along with the concrete should be abrasive blasted to a near white metal finish with a 1 -2 mil (25.4-50.8 micron) anchor profile. (Ref. SSPC-SP-10)

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 | **Masking**
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
Coefficient of Thermal Expansion (ASTM C-531)	Semstone 884	13x10 ⁻⁶ in/in°F
Compressive Strength (ASTM C-579)	Semstone 884	12,000 - 15,000 psi
Density	Semstone 884	130 lbs./cu. ft.
Effective Shrinkage (glass deflection) (ASTM C-883)	Semstone 884	No Deflection
Flexural Strength (ASTM C-580)	Semstone 884	1,500 - 2,000 psi
Hardness (ASTM D-2240 Shore D)	Semstone 884	75
Shrinkage (ASTM C-531)	Semstone 884	None
Tensile Strength (ASTM C-307)	Semstone 884	1,700 - 2,000 psi
Thermal Compatibility to Concrete (ASTM C-884)	Semstone 884	Passes
Water Boil Absorption (ASTM C-413)	Semstone 884	Less than 1%

MIXING & THINNING

- Mixing**
- Determine the number of units of SEMSTONE 884 to be mixed in the batch. Mix only as much material as can be placed and finished before material begins to set. **CAUTION: At elevated temperatures, or in direct sunlight, working time will be significantly lowered.**
 - Use horizontal blade mortar mixer with a capacity of at least twice the volume 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).
 - Mixer should be dry and clean of all foreign matter.
 - Mixer should be in good condition and rubber blades on ends of mixing arms should make full contact with mixing tub.
 - Mix only complete units. If any of the components are spilled, discard the batch (see paragraph 2 under IMPORTANT NOTES).
 - Pour all of Part B into the bucket holding Part A and blend for 2 minutes using a Jiffy type mixer.
 - Close the safety cover. Turn on the mortar mixer. As it is running, pour in all of the mixture. Be sure to scrape all of it from the bucket.
 - Slowly add all the aggregate and continue to mix until no dry aggregate appears.
 - Discharge the mixed material into a clean wheelbarrow, 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.

MIXING & THINNING

Working Time at 75° F (24° C)	45 minutes Significantly less at elevated temperatures or in direct sunlight
Material Temperature	Twenty-four hours before use, all materials (components A, B, and aggregate) should be stored at 70-85 °F (21-29 °C) to facilitate handling.

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.

General | Semstone 884 may be applied using conventional concrete placement and finishing tools.

APPLICATION PROCEDURES

General	<ul style="list-style-type: none"> • Place the mixed material onto the primed surface. • Maintain a minimum thickness of at least 1/2 inch. Screed strips are helpful in maintaining minimum thickness. A vibrating screed may facilitate placement. Do not feather edge. Key mid-floor termination points into the slab (see Construction Details.) • Finish by hand tamping using a flat trowel or sponge rubber float. • Optionally use styrene monomer as a smoothing liquid. If you use styrene monomer, mist it over the freshly placed material and spread it using clean, flat trowels or sponge rubber floats. CAUTION: Styrene monomer smoothing liquid is flammable. • If a more pronounced nonskid surface is desired, broadcast a sharp, dry grit onto the still wet surface. • If work is interrupted, or at the end of the day, terminate the topping in a straight and square line. • When used as a material of construction, Semstone 884 may be formed and poured using standard concrete construction techniques. Line all forms with polyethylene. • Vertical surface intended for constant immersion service can be formed and poured. Alternatively, our Semstone 870 Coating and Lining system may be used for vertical surfaces.
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APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	70°F (21°C)	50°F (10°C)	50°F (10°C)	0%

In general, we recommend against applying Semstone 884 if the temperature is expected to drop below 50 °F (10 °C) within 8 hours after application. If you wish to apply Semstone 884 in cooler temperatures, tarp and heat the area to be topped to create and maintain the requisite 50 °F (10 °C) or above conditions.

At the jobsite, in very hot weather, keep the components in a cool place, out of direct sunlight.

CURING SCHEDULE

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

CLEANUP & SAFETY

Cleanup | Clean all tools and equipment with acetone.

CLEANUP & SAFETY

Safety	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.
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PACKAGING, HANDLING & STORAGE

Packaging	<u>1 Cubic Foot Unit</u> Part A: premeasured Part B: premeasured Two bags of specially blended aggregate
Shelf Life	3 months Refer to batch number on label for date of manufacture.
Storage	Keep all components tightly sealed in their original containers until ready for use.
Shipping Weight (Approximate)	133.158 lbs per cubic foot
Flash Point (Setaflash)	Part B: 176 °F (80 °C) Part C: 330.8 °F (166 °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 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. All of the trademarks referenced above are the property of Carboline International Corporation unless otherwise indicated.