Carboguard 891 VOC

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	High solids polyamine-epoxy
Description	Ultra high solids epoxy that is designed as a liner for potable water, demineralized water, wastewater and many other services. It is widely used as a tank lining for steel and concrete tanks. Product is self-priming and is normally applied in two coats. Formulated for application at conventional builds (4 to 6 mils per coat) as well as high builds (10 mils per coat).
Features	• NSF/ANSI-61 approved for potable water tanks* • Meets the FDA requirements for 21CFR 175.300 for direct food contact • Ultra High solids; Low VOC and HAPs • Handles deionized water up to 150°F (66°C) • VOC compliant for South Coast; <100 g/l VOC • Good chemical resistance • Excellent thermal shock resistance • Good abrasion resistance *Valid if manufactured at a certified location.
Color	Light Grey (0700), White (0800), and Light Blue (0100). Colors are unmatched
Finish	Semi-Gloss
Primer	Self-priming
Dry Film Thickness	102 - 254 microns (4 - 10 mils) per coat (5-13 wet mils thinned 10%) Can be applied 2 or 3 coats. Do not exceed 20 mils total DFT.
Solids Content	By Volume 86% +/- 2%
Theoretical Coverage Rate	33.7 m²/l at 25 microns (1371 ft²/gal at 1.0 mils) 8.4 m²/l at 100 microns (343 ft²/gal at 4.0 mils) 3.4 m²/l at 250 microns (137 ft²/gal at 10.0 mils) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 0.52 lbs./gal (62 g/l) **As Supplied** : 0.56 lbs/gal (67 g/l)* Thinner 2 : 13 oz/gal. 1.18 lbs/gal (142 g/l)* Thinner 225 E : 13 oz/gal 0.56 lbs./gal (67 g/l)* Thinner 76 : 13 oz/gal 1.14 lbs/gal (137g/l)* * VOC calculated using EPA method 24 formula. These are nominal values and may vary slightly with color. Product contains VOC-exempt t-butyl acetate. Check local regulations regarding product usage.
Dry Temp. Resistance	Continuous: 121°C (250°F) Non-Continuous: 135°C (275°F) Some discoloration and loss of gloss is observed above 200°F (93°C).
Limitations	Epoxies lose gloss, discolor and eventually chalk in sunlight exposure.
Wet Temp. Resistance	Handles deionized water immersion temperatures up to 150°F (60°C) Water immersion temperatures up to 180°F (82°C)

SUBSTRATES & SURFACE PREPARATION

General	Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.
Steel	**Immersion:** SSPC-SP10/NACE 2 **Non-immersion::** SSPC-SP6/NACE 3 **Surface Profile:** 2-3½ mils (50-88 microns)
Concrete or CMU	Immersion: Concrete must be cured 28 days at 75°F (24°C) Prepare surfaces in accordance with SSPC-SP13/NACE 6 or ICRI 03732 to obtain CSP 3 to 5 roughness. Attain a surface profile resembling extra coarse sandpaper. Eliminate leaks and infiltrations and remove standing water. Resurface areas with excessive cavities (bugholes) or exposed aggregate using a high-strength resurfacing product like Carboguard 510. Carboguard 510 may be used to patch bugholes and to resurface.

PERFORMANCE DATA

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

Exposure	Fumes	Splashes & Spills
Acids	Good	Good
Alkalies	Very Good	Very Good
Water	Excellent	Excellent

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. **DO NOT MIX PARTIAL KITS.** Requires short 15 min sweat-in time.
Thinning	Thinning will be required to properly atomize the mixed material. Thin up to 10% (13 oz/gal) with Thinner #225E (VOC exempt thinner), Thinner #2 or Thinner #76(for non-potable use only). Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.
Ratio	2:1 Ratio (A to B)
Pot Life	1¼ Hours at 75°F (24°C) 2 Hours at 60°F (15.5°C) Pot life ends when coating loses body and begins to sag. Pot life times will be less at higher temperatures.

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.

Conventional Spray	Pressure pot equipped with dual regulators, 3/8” I.D. minimum material hose, 0.070” I.D. fluid tip and appropriate air cap. Adjust air pressure to approximately 50 psi at the gun and provide 10-20 lbs. of pot pressure.

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Airless Spray	Pump Ratio: 30:1 (min.) GPM Output: 2.5 (min.) Material Hose: 3/8" I.D. (min.) Tip Size: 0.017"-0.021" Output PSI: 1500-2300 Filter Size: 60 mesh PTFE packings are recommended and available from the pump manufacturer.
Brush & Roller (General)	Recommended for small areas and repairs only. Use a high quality brush, and apply a very light crisscross brush coat. Allow to dry for approximately 5 minutes. Then apply a heavy coat using a crisscross brush pattern. Normally, a film thickness of 2.5-3 mils (62- 75 microns) can be obtained per coat by this method.
Brush	Use a medium bristle brush.
Roller	Not recommended.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	10°C (50°F)	10°C (50°F)	10°C (50°F)	0%
Maximum	32°C (90°F)	52°C (125°F)	43°C (110°F)	90%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.
Note: Prior to spray application, stripe brush all weld attachments and surface irregularities using Carboguard 891 VOC thinned 10% by volume with Thinner #225E.

CURING SCHEDULE

Surface Temp.	Dry to Recoat	Final Cure Immersion	Maximum Recoat Time
10°C (50°F)	36 Hours	14 Days	90 Days
16°C (60°F)	20 Hours	10 Days	60 Days
24°C (75°F)	10 Hours	7 Days	45 Days
32°C (90°F)	5 Hours	5 Days	21 Days

These times are based on a 4.0-6.0 mil (150-175 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed 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. Food-grade exposures require force curing at 225°F for four hours. Raise temperature 30°F for every 30 minutes until temperature is reached. (Other curing temperatures in table below). METAL TEMPERATURE - CURING TIME 150°F/66°C - 12 Hrs 175°F/79°C - 10 Hrs 200°F/93°C - 6 Hrs 225°F/107°C - 4 Hrs

CLEANUP & SAFETY

Cleanup	Use Thinner #225E. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

CLEANUP & SAFETY

Safety	Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions.
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 vapor 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, use MSHA/NIOSH 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 National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: Min. 12 months at 75°F (24°C) Part B: Min. 6 months at 75°F (24°C) *Shelf Life: When kept at recommended storage conditions and in original unopened containers.
Shipping Weight (Approximate)	1 Gallon Kit - 15 lbs (6.8 kg) 5 Gallon Kit - 75 lbs (34 kg)
Storage Temperature & Humidity	40° - 110°F (4°- 43°C) 0-100% Relative Humidity
Flash Point (Setaflash)	Part A: 24°F (-4.5°C) Part B: 41°F (5°C)
Storage	Store Indoors.

APPROVALS

Underwriters Laboratories, Inc	Carboguard 891 VOC has been approved for potable water in accordance to ANSI/NSF Standard 61. Colors approved are light blue, light grey and white. It can be applied in 2 or 3 coats (4 to 10 mils per coat) with a maximum total DFT of 20 mils. Maximum of 10% thinning with #2 or 225E Thinner. Minimum recoat time is 10 hours at 75°F. With final cure to service is 7 days at 75°F we have a tank rating of 70,000 gallons or larger. With a final cure of 14 days at 75°F, we have a tank rating of 50 gallons or greater and a pipe rating of 15" diameter or greater.

WARRANTY