Carboguard 690 GF

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Glass filled epoxy
Description	High performance, glass-flake filled, cold cure epoxy having excellent film strength and resistance to water, salt water and wastewater exposures. This coating exhibits outstanding moisture tolerance during application, low temperature cure capability, and very fast cure response for quick return to service. Glass flake reinforcement enhances film strength, impact resistance and barrier properties. Can be used on a variety of surfaces including structural steel, piping, pilings, ships, offshore structures and other equipment exposed to industrial or marine environments. It can also be used in immersion service for salt water, process water (non-potable) and waste water treatment projects.
Features	• High solids, low VOC • High build (20+ mils) • Low temperature cure (20°F) • Excellent moisture tolerance during application • Fast cure response • Excellent physical and barrier properties
Color	Refer to Carboline Color Chart
Finish	Semi-Gloss
Primer	Self-Priming or epoxies
Dry Film Thickness	10 - 15 mils (254 - 381 microns) per coat Can be applied up to 20 mils (400 microns) in a single coat- see Limitations section. Consult Technical Service for thicker films.
Solids Content	By Volume 82% +/- 2%
Theoretical Coverage Rate	1315 ft²/gal at 1.0 mils (32.3 m²/l at 25 microns) 132 ft²/gal at 10.0 mils (3.2 m²/l at 250 microns) 88 ft²/gal at 15.0 mils (2.2 m²/l at 375 microns) Allow for loss in mixing and application.
VOC Values	Thinner 2 16 oz/gal 2.06 lbs/gal (248 g/l) As Supplied 1.3 lbs/gal (155 g/l) mixed These are nominal values and may vary with color.
Dry Temp. Resistance	Continuous: 200°F (93°C) Non-Continuous: 250°F (121°C)
Limitations	• Epoxies lose gloss, discolor and eventually chalk in sunlight exposure. Discoloration is more pronounced with this product. • For immersion projects use only factory made material in special colors. • This product has the ability to be applied over damp or even wet substrates. Remove excess water by blowing down the surface and apply in multiple coats to achieve desired film thickness. • Brush or roller, and multiple coats are preferred over wet substrates.

SUBSTRATES & SURFACE PREPARATION

General	Remove any oil or grease from surface to be coated with clean rags soaked in Carboline Thinner #2, or toluol.

SUBSTRATES & SURFACE PREPARATION

Steel	**Immersion:** SSPC-SP10; Surface Profile: 2.0-4.0 mils (50-100 microns) (See Limitations) **Non-Immersion:** SSPC-SP6; Surface Profile: 1.5-3.0 mils (38-75 microns) In certain situations SSPC-SP3 is acceptable for thicknesses up to 10 mils (250 microns)
Concrete or CMU	Do not apply coating unless concrete has cured at least 28 days @ 70°F (21°C) and 50% Relative humidity or equivalent. Clean and dry; remove all loose, unsound concrete. Consult Carboline Technical Service for more specific recommendations.

MIXING & THINNING

Mixing	• This is a 3-component kit. Mix liquid components separately, then combine and mix in the following proportions (4:1 ratio). Slowly add Glass Flake additive while mixing. • **1 Gal. Kit** • Part A: .8 gallon • Part B: .2 gallon • Glass Flake Additive: 1.8 lbs • Yield: 1.1 Gallons • **5 Gal. Kit** • Part A: 4 gallon • Part B: 1 gallon • Glass Flake Additive: 9 lbs • Yield: 5.5 Gallons • Thin up to 12.5% by volume with Carboline Thinner #2 for non-immersion applications and Thinner #10 for immersion projects.
Pot Life	1.5 hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

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.

Spray Application (General)	Hold gun 12-14 inches from the surface and at a right angle to the surface
Conventional Spray	Pressure pot equipped with dual regulators, 3/8” I.D. minimum material hose, 0.110” I.D. fluid tip and appropriate air cap.
Airless Spray	• Pump Ratio: 45:1 (min.) • Volume Output: 11.5 l/min minimum (2.5 gpm min.) • Material Hose: 12.5mm min.(3/8” I.D. recommended) • Tip Size: 0.87-1.0 mm (0.035-0.041”) • Output: 140-175kg/cm² • Pressure: (2000-2500 psi) • *PTFE packings are recommended and available from pump manufacturer.
Brush & Roller (General)	Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or re-rolling. For best results, tie-in within 10 minutes at 75°F (24°C). Thin up to 12.5% by volume per gallon with Carboline #2. Use a short-nap synthetic roller cover with phenolic core.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	45°F (7°C)	20°F (-7°C)	20°F (-7°C)	0%
Maximum	90°F (32°C)	120°F (49°C)	100°F (38°C)	95%

Industry standards are for substrate temperatures to be above the dew point. For immersion conditions it is recommended to follow this procedure. For non-immersion conditions this product can tolerate damp substrates. See Brush or Roller above. Special thinning and application techniques may be required above or below normal conditions.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Minimum Recoat Time	Maximum Recoat Time
20°F (-7°C)	72 Hours	72 Hours	60 Days
35°F (2°C)	17 Hours	17 Hours	45 Days
60°F (16°C)	6 Hours	6 Hours	30 Days
75°F (24°C)	2 Hours	2 Hours	15 Days
90°F (32°C)	1 Hour	2 Hours	7 Days

Schedule above based on 50% relative humidity and 10-15 mil (250-375 micron) dry film thickness per coat. 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. For force curing, contact Carboline Technical Service for specific requirements. For application and cure conditions below 35°F, dehumidify before, during, and after application to prevent ice formation on the surface.

CLEANUP & SAFETY

Cleanup

Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety

Read and follow all caution statements on this product data sheet and on the SDS for this product. Employ normal workerlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

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, workers should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

PACKAGING, HANDLING & STORAGE

Shelf Life

- Part A: 24 months at 75°F (24°C)
- Part B: 12 months at 75°F (24°C)
- Glass Flake Additive: 60 months @ 75° F(24°C)

*Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.

PACKAGING, HANDLING & STORAGE

Storage Temperature & Humidity	• 40-100°F (4°-38°C) • 0-95% Relative Humidity
Storage	Store Indoors. KEEP DRY.
Shipping Weight (Approximate)	• 1.1 Gal. Kit: 17 lbs (7.7 kg) • 5.5 Gal. Kit: 84 lbs (38 kg)
Flash Point (Setaflash)	• Part A: 91°F (33°C) • Part B: 80 °F (27°C) • Thinner 2: 23°F (-5°C) • Glass Flake Additive: N/A

WARRANTY

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