Carboguard® 992

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Solventless, two component, cross-linked epoxy.
Description	Carboguard 992 is a solventless, epoxy lining for dry bulk cargoes that is applied by heated, airless plural component spray, as a one coat lining for hopper cars carrying plastic pellets, food and grain, or other dry cargoes. It is acceptable for direct contact with dry bulk food products.
Features	• Single coat, high performance protection. • Low-to-no odor. • Easy to apply by plural component airless. • Meets FDA requirements of 21CFR 175.300. • Excellent chemical resistance. • Fast cure. • Tough, flexible, abrasion resistant. • Excellent corrosion protection. • Impact resistant. • Hi-build application in one coat.
Color	Available in Off-White (1898), Tan (5803), Blue (4169), Blue (5141) and Gray (0794).
Finish	Gloss (Epoxies lose gloss, discolor and eventually chalk in sunlight exposure).
Primer	Self-priming.
Dry Film Thickness	6 - 12 mils (152 - 305 microns) not to exceed 16 mils (400 microns) Depending on service.
Solids Content	By Volume 99% +/- 1%
Theoretical Coverage Rate	1588 ft²/gal at 1.0 mils (39.0 m²/l at 25 microns) 265 ft²/gal at 6.0 mils (6.5 m²/l at 150 microns) 132 ft²/gal at 12.0 mils (3.2 m²/l at 300 microns) Allow for loss in mixing and application.
VOC Value(s)	EPA Method 24: 0.05 lbs/gal (6 g/l) These are nominal values and may vary slightly with color. Thinning is not required or recommended.
Dry Temp. Resistance	Continuous: 212°F (100°C) Non-Continuous: 250°F (121°C) Discoloration and loss of gloss is observed above 200 °F (93 °C).
Limitations	Epoxies may lose gloss, discolor and chalk when exposed to sunlight.

SUBSTRATES & SURFACE PREPARATION

General	Remove all oil or grease from the surface to be coated with clean rags soaked in Thinner 2 or Carboline Surface Cleaner 3 (refer to Surface Cleaner 3 instructions) in accordance with SSPC-SP1.

SUBSTRATES & SURFACE PREPARATION

Steel | Abrasive blast to a Near White Metal Finish in accordance with SSPC-SP 10 and obtain a 2.5 mil (63 micron) blast profile.

Welding Data | Weld joints shall be prepared in accordance with NACE SP 0178, latest edition, weld prep designation C.

TYPICAL CHEMICAL RESISTANCE

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

MIXING & THINNING

Mixing | Premix each component separately to ensure homogeneity, prior to mixing/spraying.

Thinning | Thinning is not required. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Ratio | 1:1 by volume (Part A to Part B)

Pot Life | For Touch Up: 30 minutes in a one-quart mass at 75 °F (24 °C), less than 5 minutes at 130 °F (54 °C).

The pot life ends when the material 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) | The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Plural Component Airless Spray | Airless plural component, heated spray equipment capable of 3000 psi with a mixer manifold and whip hose is required for the application of this material. Contact Carboline Technical Service for additional information.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	120°F (49°C)	55°F (13°C)	55°F (13°C)	10%
Maximum	150°F (66°C)	110°F (43°C)	110°F (43°C)	80%

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.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Cure for Service
75°F (24°C)	12 Hours	7 Days
100°F (38°C)	5 Hours	7 Days
120°F (49°C)	4 Hours	6 Days
180°F (82°C)	75 Minutes	26 Hours

CAUTION: Please note requirement for ambient cure in addition to bake schedule.
Maximum recoat window is 14 days at 75°F. Contact Carboline Technical Service for recoat window parameters at other elevated temperatures.

Curing Details

One-Coat Bake Cycle
- **Ambient Cure at 75 °F (24 °C):** 15 Minutes
- **Then Bake at 120 °F (49 °C)*:** 3.5 Hours

*Note: For the bake cycle, increase the surface temperature from 75 °F (24 °C) to 120 °F (49 °C) at a rate not exceeding 30 °F (16 °C) every 15 minutes.
Insufficient ventilation or cooler temperatures will require longer cure times. 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.
Optional acceptance final cure procedure: A one coat bake cycle can also be achieved using equipment that provides 3500 CFM, 4 million BTU, with an air temperature of 180 °F (82 °C). The installed lining is cured for two hours maintaining constant heating and airflow. Following the two-hour cure, allow the lining to air dry in the shop for an additional two hours without supplemental ventilation.

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 workmanlike safety precautions. Use adequate ventilation. Keep container closed when not in use.

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.

PACKAGING, HANDLING & STORAGE

Shelf Life

Part A & B: 18 months at 75 °F (24 °C)

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

Storage Temperature & Humidity

40-110 °F (4-43 °C)
0-80% Relative Humidity

Storage

Store Indoors.

PACKAGING, HANDLING & STORAGE

Shipping Weight (Approximate)	10 Gallon Kit - 128 lbs. (58 kg) 100 Gallon Kit - 1290 lbs. (585 kg)
Flash Point (Setaflash)	Part A: >205 °F (96 °C) Part B: >205 °F (96 °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.