Carboguard 893

PRODUCT DATA SHEET

SELECTION & SPECIFICATION DATA

Generic Type	Cycloaliphatic Amine Epoxy
Description	High solids corrosion resistant primer and intermediate. Used either as a primer or an intermediate coat over steel and inorganic zinc primers. Can be topcoated with a broad variety of high performance finish coats.
Features	• Excellent corrosion protection • Excellent film build and edge protection • Used as a primer or an intermediate coating • Good abrasion resistance • Cures down to 4ºC (40°F) • VOC compliant to current AIM regulations
Color	Red (0500); Gray (0700); White (0800)
Finish	Eggshell
Primer	Self-priming. May be applied over organic and inorganic zinc rich primers. A mist coat may be required to minimize bubbling over zinc rich primers.
Dry Film Thickness	76 - 152 microns (3 - 6 mils) per coat 102 - 152 microns (4 - 6 mils) per coat 76-152 microns (3-6 mil) for mild environments and as an intermediate coat over zinc rich primers. 102-152 (4-6 mil) for more severe environments. Do not exceed 250 microns (10.0 mil) in a single coat. Excessive film thickness over inorganic zincs may increase damage during shipping or erection.
Solids Content	By Volume 77% +/- 2%
Theoretical Coverage Rate	30.3 m²/l at 25 microns (1235 ft²/gal at 1.0 mils) 10.1 m²/l at 75 microns (412 ft²/gal at 3.0 mils) 5.1 m²/l at 150 microns (206 ft²/gal at 6.0 mils) Allow for loss in mixing and application.
VOC Values	**As Supplied** : 195 g/l (1.6 lbs/gal) Thinner 2 : 261 g/l (16 oz/gal = 2.2 lbs/gal) Thinner 230 : 252 g/l (13 oz/gal = 2.1 lbs/gal) Thinner 33 : 329 g/l (32 oz/gal = 2.7 lbs/gal) These are nominal values and may vary slightly with color. *Maximum thinning for 250 g/l restricted areas is 12 oz/gal with Thinner 2, and 11 oz/gal with Thinner 33 or 230. Use Thinner 76 where non-photochemically reactive solvents are required (up to 11 oz/gal)
Dry Temp. Resistance	Continuous: 93°C (199°F) Non-Continuous: 121°C (250°F) Discoloration and loss of gloss is observed above 93ºC (200ºF).
Limitations	Epoxies may lose gloss, discolor and chalk when exposed to sunlight. Not recommended for immersion service.
Topcoats	May be coated with Acrylics, Epoxies, Alkyds, or Polyurethanes depending on exposure and need.

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	ISO 8501-1 Sa 2 (SSPC-SP6) with a 25-50 microns (1.0-2.0 mil) surface profile. When using under fireproofing products, defer to the primer surface preparation requirements in the product data sheet of the fireproofing product.
Concrete or CMU	Concrete must be cured 28 days at 24ºC (75°F) and 50% relative humidity or equivalent. Prepare surfaces in accordance with ASTM D42582 Surface Cleaning of Concrete and ASTM D4259 Abrading Concrete. Voids in concrete may require surfacing.
Non-Ferrous Metals	Surface profile should be a dense angular 38-76 microns (1.5 - 3 mil) and is best achieved through abrasive blasting in accordance with SSPC-SP16 for atmospheric exposure.

PERFORMANCE DATA

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

Test Method	System	Results
ASTM B117 Salt Fog	Blasted Steel 1ct. IOZ 1 ct. 893	No blistering, rusting and no creepage at scribe after 4000 hours
ASTM D 1735 Water Fog	Blasted Steel 1ct. IOZ 1 ct. 893	No blistering softening or rusting after 5000 hours
ASTM D2583 Hardness	Blasted Steel 1 ct. 893	73, Barcol Test, 1 week cure, 5 mil DFT
ASTM D4060 Abrasion	Blasted Steel 1ct. 893	88 mg. loss after 1000 cycles, CS17 wheel, 1000 gm. load
ASTM G26 Weatherometer	Blasted Steel 1ct. IOZ 1 ct. 893	No blistering softening or rusting after 4000 hours

Test reports and additional data available upon written request.

MIXING & THINNING

Mixing	Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS. A 30-minute “sweat-in” time is highly recommended for applications below 10ºC (50°F) and will improve cure response.
Thinning	**Preferred Thinner Uses and Application:** Spray: Up to 12% (131.5 g/l, 16 oz/gal) w/ Thinner 2 or up to 10% (106.8 g/l, 13 oz/gal) w/ Thinner 230 Brush: Up to 25% (263 g/l, 32 oz/gal) w/ Thinner 33 Roller: Up to 25% (263 g/l, 32 oz/gal) w/ Thinner 33 Mist coating: Thin up to 263 g/l (32 oz/gal) with Thinner 2 or 33 in VOC restricted (2.8lb/gal) areas. May thin up to 48 oz/gal where VOC restricted levels are at 0.42 kg/l (3.5 lb/gal) for mist coat only. If necessary, use Thinner 230 only in hot (above 38ºC/100°F) and windy conditions, to slow down the evaporation rate. Carboline Thinner 236E or 225E (up to 10% or 13 oz/gal) may also be used to thin this product to minimize HAP and VOC emissions. **Alternate Compatible Thinners for Atmospheric Service:** Carboline Thinner 2, 10, 15, 76, 225E, 229, 236E, 243E, 248 and Plasite Thinner 19 or 20. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

MIXING & THINNING

Ratio	1:1 Ratio (A to B)
Pot Life	4 Hours at 24ºC (75°F) Pot life ends when coating loses body and begins to sag. Pot life times will be less at higher temperatures. Thinning rates above 16 oz/gal will shorten the working time to 2 hours.

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)	This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.
Conventional Spray	Pressure pot equipped with dual regulators, 9.53 mm (3/8”) I.D. minimum material hose, 1.78 mm (0.070”) I.D. fluid tip and appropriate air cap.
Airless Spray	Pump ratio: 30:1 (min.) Output flow: 11.36 LPM (3.0 GPM) (min.) Hose material: 9.53 mm (3/8”) inner diameter (min.) Spray nozzle: 0.43-0.53 mm (0.017” - 0.021”) Output pressure: 145-158 bar (2100-2300 psi) Filter size: 250 microns (60 mesh) PTFE packings are recommended and available from the 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 24ºC (75°F).
Brush	Use a medium bristle brush.
Roller	Use a short-nap synthetic roller cover with phenolic core.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	4°C (40°F)	4°C (40°F)	4°C (40°F)	0%
Maximum	32°C (90°F)	57°C (135°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.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Topcoat	Dry to Touch	Maximum Recoat Time w/ Acrylics	Maximum Recoat Time w/ Epoxies	Maximum Recoat Time w/ Polyurethanes
4°C (40°F)	24 Hours	72 Hours	6 Hours	14 Days	30 Days	90 Days
10°C (50°F)	16 Hours	24 Hours	5 Hours	14 Days	30 Days	90 Days
16°C (60°F)	12 Hours	16 Hours	4 Hours	14 Days	30 Days	90 Days
24°C (75°F)	6 Hours	8 Hours	3 Hours	14 Days	30 Days	90 Days
32°C (90°F)	3 Hours	4 Hours	2 Hours	14 Days	15 Days	30 Days

These times are based on a 100 micron (4.0 mil) 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. During high humidity conditions, it is recommended that the application be done while temperatures are increasing. If the maximum recoat time is exceeded, the surface must be abraded by sweep blasting or sanding before the application of additional coats. When cured below 10ºC (50ºF) a slight softening is typically observed as the temperature rises above 10ºC (50ºF) and is considered normal.

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. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.
Ventilation	When used in enclosed areas and product is thinned, 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: Min. 36 months at 24ºC (75°F) Part B: Min. 24 months at 24ºC (75°F) *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.
Shipping Weight (Approximate)	20 litres container – approx. 35.5 Kg Part A: 10 litres Part B: 10 litres
Storage Temperature & Humidity	4°-43°C (40°-110°F) 0-90% Relative Humidity
Flash Point (Setaflash)	Part A: 16ºC (61°F) Part B: 15ºC (59°F)

PACKAGING, HANDLING & STORAGE

	Store Indoors.
Storage	This product is solvent based and not affected by excursions below these published storage temperatures, down to -12ºC (10°F), for a duration of no more than 14 days. Always inspect the product prior to use to make sure it is smooth and homogeneous when properly mixed.

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 to verify correctness before specifying or ordering. No guarantee of accuracy is given or implied. Carboline warrants our products to be free of manufacturing defects in accord with applicable Carboline quality control procedures. THIS WARRANTY IS NOT VALID WHEN THE PRODUCT IS NOT: (1) APPLIED IN ACCORDANCE WITH CARBOLINE'S SPECIFICATIONS, AND/OR (2) PROPERLY STORED, CURED, AND USED UNDER NORMAL OPERATING CONDITIONS. Carboline assumes no responsibility for coverage, performance, injuries, or damages resulting from use of the product. If this product is found not to perform as specified upon inspection by a Carboline representative during the warranty period, Carboline's sole obligation, if any, is to replace the Carboline product(s) proven to be defective or refund the purchase price thereof, at Carboline's sole option. Carboline shall not be liable for any other losses or damages. This warranty excludes (1) labor and costs of labor for the application or removal of any product, and (2) any incidental or consequential damages, whether based on breach of express or implied warranty, negligence, strict liability or any other legal theory. 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. The whole text of this Product Data Sheet, as well as the documents derived from it, have been written in English, and for legal purposes the English version shall prevail.