product data

carboline®

Carbozinc® 859 VOC

Selection & Specification Data

Generic Type Organic Zinc-Rich Epoxy

Description Ultra-low VOC organic zinc epoxy steel primer with extremely fast cure-to-topcoat characteristics for in-shop applications and quick turnaround requirements in the field. Carbozinc 859 VOC has less than 100 g/l VOC (thinned) and can be used in virtually all industrial markets.

Features

- Rapid cure. Dry to recoat in 30 minutes at 75°F (24°C) and 50% relative humidity.
- Complies with SSPC Paint 20 (Type II)
- Low temperature cure down to 35°F (2°C)
- Excellent adhesion
- Protects against undercutting corrosion
- Field proven primer that applies well by spray methods
- Excellent touch-up primer by brush or roll for small areas.
- Extremely low VOC (less than 100 g/l)
- Low HAPS (0.51 lbs/solid gal)

Color Green (0300)

Finish Flat

Primers Self Priming

Topcoats Can be topcoated with Epoxies, Polyurethanes, Acrylics and others as recommended by your Carboline sales representative. Under certain conditions, a mist coat is required to minimize topcoat bubbling.

Dry Film Thickness 3.0-5.0 mils (75-125 microns). Dry film thickness in excess of 10.0 mils (250 microns) per coat is not recommended.

Solids Content* By Volume: 66% ± 2%
*Tested in accordance with ASTM D2697

Zinc Content By Weight: 81% ± 2% in dry film

Theoretical Coverage Rate 1,059 mil ft^2 (24.0 m^2/l at 25 microns)
353 ft^2 at 3.0 mils (8.0 m^2/l at 75 microns)
Allow for loss in mixing and application

VOC Values (Based on EPA Method 24)
As Supplied: 0.79 lbs./gal (95 g/l)
Thinned:
13 oz/gal w/ #225E: 0.79 lbs./gal (95 g/l)
13 oz/gal w/ #243E 0.79 lbs./gal (95 g/l)
These are nominal values.

Dry Temp. Resistance
Continuous: 400°F (204°C)
Non-Continuous: 425°F (218°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 SSPC-SP6 with a 1.0-3.0 mil (25-75 micron) profile. SSPC-SP2 or SP3 for touch-up.

Performance Data

Based on Carbozinc 859 (dry films are identical)

Test Method	System	Results
ASTM D4541 Adhesion	A. Carbozinc 859 B. 859 / Polyurethane C. 859/Epoxy/ Polyurethane	A. 841 psi Pneumatic B. 1,100 min. psi Pneumatic C. 602 psi Elcometer
ASTM D522 Flexibility	A. 859 B. 859 / Polyurethane	A. > 6% B. > 5%
ASTM D2794 Impact	A. 859 B. 859 / polyurethane Gardner Impact Tester,Direct (intrusion), inch-pounds, over 1/8" steel	A. 160 B. 100 min.
ASTM D970 Immersion	A. Carbozinc 859/Epoxy/ Polyurethane Salt Water (5% sodium chloride) at 75°F,30 days B. 859 / Epoxy / Polyurethane Fresh water at 75°F,30 days	A & B had no rusting in the scribe; and no blistering, softening or discoloration with either environment

Test reports and additional data available upon written request.

Application Equipment

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 Guidelines:

Spray Application (General) The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco. Keep material under mild agitation during application.

Conventional Spray Agitated pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, .070" I.D. fluid tip and appropriate air cap.

Airless Spray

Pump Ratio:	30:1 (min.)*
GPM Output:	3.0 (min.)
Material Hose:	3/8" I.D. (min.)
Tip Size:	.017-.023"
Output PSI:	2000-2200
Filter Size:	60 mesh

*Teflon packings are recommended and available from the pump manufacturer.

Brush/Roller For small areas and touch-up only. Preferred method for large areas is spray application.

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Mixing & Thinning

Mixing Power mix Part A completely. Then slowly sift in the zinc filler under agitation. Power mix Part B separately and add slowly to the mixture. Pour mixture through a 30 mesh screen. DO NOT MIX PARTIAL KITS.
Tip: Sifting zinc through a window screen will aid in mixing process by breaking up or catching dry zinc lumps.

		.80 Gal Kit	4.00 Gal. Kit
Ratio	Part A:	.35 gallons	1.77 gallons
	Part B:	.20 gallons	1 gallon
	Zinc Filler:	14.6 lbs	73 lbs

Thinning Normally not required but may be thinned up to 13 oz/gal (10%) with Thinner #243E or Thinner #225E. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life 1.5 Hours at 75°F (24°C) and less at higher temperatures.

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 MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation When used 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. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.

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.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	60°-85°F (16°-29°C)	60°-90°F (16°-32°C)	60°-90°F (16°-32°C)	0-90%
Minimum	40°F (4°C)	35°F (2°C)	35°F (2°C)	0%
Maximum	90°F (32°C)	120°F (49°C)	110°F (43°C)	95%

Industry standards are for the substrate temperatures to be 5°F (3°C) above the dew point. 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. & 50% Relative Humidity	Dry to Handle	Dry to Topcoat
35°F (2°C)	8 Hours	6 Hours
50°F (10°C)	5 Hours	2 Hours
75°F (24°C)	2 Hours	30 Minutes
100°F (32°C)	1 Hour	30 Minutes

These times are based on a 3.0 mil (75 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. **Specific topcoat products can be used in a much shorter re-coat interval. Consult Carboline for recommendations and test results.**
Maximum Recoat: Unlimited. Must have a clean, dry surface for topcoating. "Loose" chalk or salts must be removed in accordance with good painting practice. Consult Carboline Technical Service for specific information.

Packaging, Handling & Storage

Shipping Weight (Approximate)	.80 Gallon Kit 22 lbs (10 kg)	4.00 Gallon Kit 105 lbs (48 kg)
Flash Point (Setaflash)	Part A: 48°F (9°C) Part B: 69°F (20°C) Zinc Filler: NA	
Storage (General)	Store Indoors.	
Storage Temperature & Humidity	40° – 110°F (4° - 43°C). 0-95% Relative Humidity	
Shelf Life	Part A: Min. 24 months at 75°F (24°C) Part B: Min. 24 months at 75°F (24°C) Part C: 24 months at 75°F (24°C)	

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

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