

product data

carboline

Carbozinc® 859

## Selection & Specification Data

<b>Generic Type</b>	Solvent Based Organic Zinc-Rich Epoxy
<b>Description</b>	<u>Low VOC organic zinc epoxy steel primer with extremely fast cure-to-topcoat characteristics for in-shop applications and rapid-turnaround requirements in the field.</u> Carbozinc 859 has less than 3.0 lbs/gallon VOC (thinned) and is used extensively in virtually all industrial markets.
<b>Features</b>	<ul style="list-style-type: none"> <li>▪ Meets Class B slip co-efficient and creep testing criteria for use on faying surfaces.</li> <li>▪ Rapid cure. Dry to recoat in 30 minutes at 75°F (24°C) and 50% relative humidity/mist coat required when topcoating.</li> <li>▪ Low temperature cure down to 35°F (2°C).</li> <li>▪ Excellent adhesion and undercutting resistance.</li> <li>▪ Available in ASTM D520, Type II zinc version.</li> <li>▪ May be applied with standard airless or conventional spray equipment.</li> <li>▪ VOC compliant to current AIM regulations.</li> </ul>
<b>Color</b>	Green (0300)
<b>Finish</b>	Flat
<b>Primers</b>	Self Priming
<b>Topcoats</b>	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.
<b>Dry Film Thickness</b>	3.0-5.0 mils (75-125 microns). Dry film thickness in excess of 6.0 mils (150 microns) per coat is not recommended.
<b>Solids Content</b>	By Volume: 61% ± 2%
<b>Zinc Content</b>	By Weight: 81% ± 2% in dry film
<b>Theoretical Coverage Rate</b>	078 mil ft <sup>2</sup> (24.0 m <sup>2</sup> /l at 25 microns) 326 ft <sup>2</sup> at 3.0 mils (8.0 m <sup>2</sup> /l at 75 microns) Allow for loss in mixing and application
<b>VOC Values</b>	As Supplied: 2.72 lbs./gal (326 g/l) Thinned: 13 oz/gal w/ #2: 3.12 lbs./gal (374 g/l) 13 oz/gal w/ #33: 3.15 lbs./gal (378 g/l) These are nominal values.
<b>Dry Temp. Resistance</b>	Continuous: 300°F (93°C) Non-Continuous: 350°F (121°C)

## Substrates & Surface Preparation

<b>General</b>	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.
<b>Steel</b>	SSPC-SP6 with a 1.0-2.0 mil (25-50 micron) surface profile. SSPC-SP2 or SP3 for touch-up.

## Performance Data

Test Method	System	Results	Report #
ASTM D409 Adhesion	A. Carbozinc 859	A. 841 psi Pneumatic	03343
	B. 859 / Polyurethane	B. 1,100 min. psi Pneumatic	03343
	C. 859/Epoxy/Polyurethane	C. 802 psi Elcometer	03390
ASTM D522 Flexibility	A. 859 B. 859 / Polyurethane	A. > 6% B. > 5%	03343
ASTM D2794 Impact	A. 859 B. 859 / polyurethane Gardner Impact Tester, Direct (intrusion), Inch-pounds, over 1/8" steel	A. 160 b. 100 min.	03343
ASTM B117 Salt Fog	A. 859 / Polyurethane B. 859 / Epoxy / Polyurethane	A. No blistering, rusting or delamination; less than 2mm. rust creepage at scribe after 3000 hours. B. No rusting, blistering, loss of bond or any measurable creepage from scribe after 3000 hours.	03342  03390
Slip Co- Efficient	Carbozinc 859 A-490 bolt spec; 4 mils dry film maximum, 10% max. thinning	Meets requirements for class B rating at 0.52 slip co- efficient A & B had no rusting in the scribe; and no blistering, softening or discoloration with either environment	03617
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		03390

Test reports and additional data available upon written request.

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## Carbozinc® 859

### Application Equipment

**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** For small areas and touch-up only. Use medium bristle brush and avoid rebrushing.

**Roller** Not recommended

### 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.

Ratio	80 Gal Kit	4.00 Gal Kit
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 #2. In hot or windy conditions, may be thinned up to 13 oz/gal with #30. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

**Pot Life** 4 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating loses body and begins to sag.

### Cleanup & Safety

**Cleanup** Use #2 Thinner 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.

**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.

### 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	8 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. Maximum Recoat: Unlimited. Must have a clean, dry substrate for topcoating. Consult Carboline Technical Service for specific information.

### Packaging, Handling & Storage

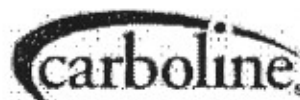
Shipping Weight (Approximate)	80 Gallon Kit	4.00 Gallon Kit
	22 lbs (10 kg)	105 lbs (48 kg)

**Flash Point (Setflash)** Part A: 49°F (9°C)  
Part B: 38°F (3°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: 24 months at 75°F (24°C)  
Part B: 24 months at 75°F (24°C)  
Zinc Filler: 24 months at 75°F (24°C)



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**STONCOR** Group

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