

Generic Type	Solvent Based Inorganic Zinc	
Description	Time-tested corrosion resistant primer that protects steel galvanically in the harshest environments. For over four decades, Carbozinc 11 (CZ 11) has been the industry standard for high-performance inorganic zinc protection on steel structures worldwide.	
Features	<ul style="list-style-type: none"> • CZ 11 meets Class B slip co-efficient an creep testing criteria for use on faying surfaces with 73# zinc dust filler. • Rapid cure. Dry to handle in 45 minutes at 60°F (16°C) and 50% relative humidity. • Low temperature cure down to 0°F (-18°C) • High zinc loading. • Meets FDA requirements in gray color. • Available in ASTM D520, Type II zinc version. • Very good resistance to salting. • May be applied with standard airless or conventional spray equipment. • VOC compliant in certain areas 	
CZ 11 FG	<ul style="list-style-type: none"> • Lower zinc loading for economics. • VOC compliant for shop/fabricator use only. 	
Color	Green (0300); Gray (0700)	
Finish	Flat	
Primers	Self Priming	
Topcoats	Not required for certain exposures. Can be topcoated with Epoxies, Polyurethanes, Acrylics, High-Heat Silicones and others as recommended by your Carboline sales representative. Under certain conditions, a mist coat is required to minimize topcoat bubbling.	
Dry Film Thickness	2.0-3.0 mils (50-75 microns). Dry film thickness in excess of 6.0 mils (150 microns) per coat is not recommended. __CZ_11__	
Solids Content	CZ 11 By Weight: 79% ± 2%	CZ 11 FG 74% + 2%
Zinc Content In dry film	By Weight: 85% ± 2%	79% + 2%
Theoretical Coverage Rate	CZ 11: 1000 mil ft ² (22.8 m ² /l at 25 microns) 333 ft ² at 3.0 mils (8.2 m ² /l at 75 microns) CZ 11 FG: 850 mil ft ² (19.4 m ² /l at 25 microns) 283 ft ² at 3.0 mils (7.0 m ² /l at 75 microns) Allow for loss in mixing and application	
VOC Values Carbozinc 11	EPA Method 24: 4.0 lbs./gal (479 g/l) Thinned: For use in fabrication shops only to remain in VOC compliance in accordance with EPA Standards. 7 oz/gal w/ #21: 4.1 lbs./gal (492 g/l) 5 oz/gal w/ #26: 4.1 lbs./gal (492 g/l) 5 oz/gal w/ #33: 4.1 lbs./gal (492 g/l) These are nominal values.	
VOC Values Carbozinc 11 FG	7 oz/gal w/ #21: 4.5 lbs./gal (492 g/l) 5 oz/gal w/ #26: 4.5 lbs./gal (492 g/l) 5 oz/gal w/ #33: 4.5 lbs./gal (492 g/l) These are nominal values.	
Dry Temp. Resistance	Untopcoated: Continuous: 750°F (399°C) Non-Continuous: 800°F (427°C) With recommended silicone topcoats: Continuous: 1000°F (538°C) Non-Continuous: 1200°F (649°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	Non-Immersion: SSPC-SP6 and obtain a 1.0-3.0 mil (25-75 micron) angular blast profile.

Product Data

Test Method	System	Results	Report #
ASTM A-325 Slip Co-efficient	Blasted steel 1 ct. CZ 11	0.668; meets requirements for Class B rating	02722
ASTM B117 Salt Spray	1 ct. CZ 11 at 2 mils dry film thickness over blasted steel	No rusting or blistering, cracking or delamination after 43000 hrs. Moderate salting of the surface only.	SR 408
ASTM D3363 Pencil Hardness	1 ct. CZ 11	Pencil Hardness "2H"	03278
AASHTO M300 Bullet Hole Immersion Paragraph 4.6.9	1 ct. CZ 11 over Abrasive blasted steel	No blistering or rusting of coating or rusting of bare steel area after 650 hrs. Immersion in 5% sodium chloride solution; 1.5" round bare area in coating.	02514

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 modification 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. If spraying stops for more than 10 minutes, recirculate the material remaining in the spray line. Do not leave mixed primer in the hoses during work stoppages.												
Conventional Spray	Agitated pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, with a maximum length of 50', .070" I.D. fluid tip and appropriate air cap.												
Airless Spray	<table border="0"> <tr> <td>Pump Ratio:</td> <td>30:1 (min.)</td> </tr> <tr> <td>GPM Output:</td> <td>3.0 (min.)</td> </tr> <tr> <td>Material Hose:</td> <td>3/8" I.D. (min.)</td> </tr> <tr> <td>Tip Size:</td> <td>.019-.023"</td> </tr> <tr> <td>Output PSI:</td> <td>1500-2000</td> </tr> <tr> <td>Filter Size:</td> <td>60 mesh</td> </tr> </table> <p>*Teflon packings are recommended and available from the pump manufacturer.</p>	Pump Ratio:	30:1 (min.)	GPM Output:	3.0 (min.)	Material Hose:	3/8" I.D. (min.)	Tip Size:	.019-.023"	Output PSI:	1500-2000	Filter Size:	60 mesh
Pump Ratio:	30:1 (min.)												
GPM Output:	3.0 (min.)												
Material Hose:	3/8" I.D. (min.)												
Tip Size:	.019-.023"												
Output PSI:	1500-2000												
Filter Size:	60 mesh												
Brush	For touch-up of areas less than one square foot only. Use medium bristle brush and avoid rebrushing.												
Roller	Not recommended												

Mixing & Thinning

Mixing Power mix base, then combine and power mix as follows. Pour zinc filler very slowly into premixed base with continuous agitation. Mix until free of lumps. Pour mixture through a 30 mesh screen. DO NOT MIX PARTIAL KITS. Tip: Sifting zinc through a window screen will aid in the mixing process by breaking up or catching dry zinc lumps.

Ratio

	CZ 11 1 Gal Kit	CZ 11 5 Gallon Kit	CZ 11 FG 4.6 Gallon Kit
Part A:	.75 gal.	3.75 gallons	3.75 gallons
Zinc Filler:	14.6 lbs.	73 lbs.	50 lbs.

Thinning May be thinned up to 5 oz/gal (4%) with #26 for ambient and warm surfaces. For extremely warm or windy conditions, may be thinned up to 5 oz/gal (4%) with #33. In cool weather (below 40°F (4°C)), thin up to 7 oz/gal (6%) with #21. Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life 8 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

Cleanup & Safety

Cleanup Use Thinner #21 or Isopropyl Alcohol. 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 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. 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	40°-95°F (4°-35°C)	40°-110°F (4°-43°C)	40°-95°F (4°-35°C)	40-60%
Minimum	0°F (-18°C)	0°F (-18°C)	0°F (-18°C)	30%
Maximum	130°F (54°C)	200°F (93°C)	130°F (54°C)	95%

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/Recoat
0°F (-18°C)	4 Hours	7 Days
40°F (4°C)	1 Hour	48 Hours
60°F (16°C)	3/4 Hour	24 Hours
80°F (27°C)	3/4 Hour	18 Hours
100°F (38°C)	1/4 Hour	16 Hours

These times are based on a 3.0-4.0 mil (75-100 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. Humidity levels below 50% will require longer cure times. Notes: Any salting that appears on the zinc surface as a result of prolonged weathering exposure must be removed prior to the application of additional coatings. Also, loose zinc must be removed from the cured film by rubbing with fiberglass screen wire if: 1) The Carbozinc 11 is to be used without a topcoat in immersion service and "zinc pick up" could be detrimental, or 2) When "dry spray/overspray" is evident on the cured film and a topcoat will be applied. For accelerated curing or where the relative humidity is below 40%, allow an initial 2-hour ambient cure. Follow 2 hour cure with water misting or steam to keep the coated surface wet for a minimum of 8 hours and until the coated surface achieves a "2H" pencil hardness per ASTM D3363.

Packaging, Handling & Storage

CZ 11 Shipping Weight (Approximate)

1 Gallon Kit	5 Gallon Kit
23 lbs (10 kg)	113 lbs (51 kg)

CZ 11 FG Shipping Weight (Approximate) 4.6 Gallon Kit 104 lbs. (47 kg)

Flash Point (Setaflash)
Part A: 55°F (13°C)
Zinc Filler: NA

Storage (General) Store Indoors.

Storage Temperature & Humidity 40° -100°F (4-38°C). 0-90% Relative Humidity

Shelf Life: 11 & 11FG
Part A: 12 months at 75°F (24°C)
Part B: 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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CARBOZINC® 11 VOC

Generic Type	Solvent Based Inorganic Zinc
Description	Low VOC version of the original Carbozinc 11 primer, which protects steel galvanically. Carbozinc 11 VOC provides excellent performance properties while meeting VOC requirements of 3.20 lbs./gallon (unthinned) and 3.75 lbs/gallon (thinned).
Features	<ul style="list-style-type: none"> • Meets Class B slip co-efficient and creep testing criteria for use on faying surfaces • Rapid cure. Dry to handle in 1 hour at 75°F (24°C) and 50% relative humidity • High zinc loading • Available in ASTM D520, Type II zinc version • Very good resistance to salting • May be applied with standard airless or conventional spray equipment • VOC compliant to current AIM regulations
Color	Green (0300) or Gray (0700)
Finish	Flat
Primers	Self Priming
Topcoats	Not required for certain exposures. Can be topcoated with Epoxies, Polyurethanes, Acrylics, High-Heat Silicones and others as recommended by your Carboline sales representative. Under certain conditions, a mist coat is required to minimize topcoat bubbling.
Dry Film Thickness	2.0-3.0 mils (50-75 microns). Dry film thickness in excess of 6.0 mils (150 microns) per coat is not recommended. <u> </u> CZ_11 <u> </u>
Solids Content	By Weight: 88% ± 2%
Zinc Content In dry film	By Weight: 85% ± 2%
Theoretical Coverage Rate	1220 mil ft ² (30.0 m ² /l at 25 microns) 407 ft ² at 3.0 mils (10.0 m ² /l at 75 microns) Allow for loss in mixing and application.
VOC Values	EPA Method 24: 3.20 lbs/gal (389 g/l) Thinned: 20 oz/gal w/ #26: 3.79 lbs/gal (454 g/l) 20 oz/gal w/ #33: 3.77 lbs/gal (451 g/l) 20 oz/gal w/ #237: 3.62 lbs/gal (434 g/l) These are nominal values.
Dry Temp. Resistance	<p>Untopcoated</p> <p>Continuous: 750°F (399°C) Non-Continuous: 800°F (427°C)</p> <p>With recommended silicone topcoats:</p> <p>Continuous: 1000°F (538°C) Non-Continuous: 1200°F (649°C)</p>

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	Non-Immersion: SSPC-SP6 and obtain a 1.0-3.0 mil (25-75 micron) angular blast profile.

Product Data

Test Method	System	Results	Report#
ASTM G26 Weatherometer	Carbozinc 11 VOC	No blistering, softening, rusting or adhesion loss, after 5000 hrs.	03117
ASTM B117 Salt Fog	Carbozinc 11 VOC	No blistering, rusting, or other effects on plane area except surface softening. No rusting or undercutting at scribe after 30,000 hours	L-40-179
ASTM D1735 Water Fog	Carbozinc 11 VOC	No blistering or rust on plane area. No rusting or undercutting at scribe after 8760 hours.	SR322
Slip Co-Efficient	Carbozinc 11 VOC A-490 bolt spec; 6 mils dry film max., 12 hr min. cure time	Meets requirement for Class B rating at 0.66 Slip co-efficient and average creep of 0.0015.	
Thermo-Shock	Carbozinc 11 VOC Immerse in liquid nitrogen for 20 minutes, then quench in 124°F water for 3.5 minutes	No cracking or flaking, film remained in tact.	08682
Bullet Hole Immersion	Carbozinc 11 VOC AASHTO M: 300-921 paragraph 4.6.9; 5% sodium chloride at 75°F, 650 hrs	No blistering of coating. No rusting of bare steel area.	03036

*Based on 85% zinc loading.

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 modification 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. If spraying stops for more than 10 minutes, recirculate the material remaining in the spray line. Do not leave mixed primer in the hoses during work stoppages.

Conventional Spray

Agitated pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, with a maximum length of 50', .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-.021"
Output PSI: 2100-2500
Filter Size: 60 mesh

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

Brush

For touch-up of areas less than one square foot only. Use medium bristle brush and avoid rebrushing.

Roller

Not recommended

Mixing & Thinning

Mixing Power mix base, then combine and power mix as follows. Pour zinc filler very slowly into premixed base with continuous agitation. Mix until free of lumps. Pour mixture through a 30 mesh screen. DO NOT MIX PARTIAL KITS. Tip: Sifting zinc through a window screen will aid in the mixing process by breaking up or catching dry zinc lumps.

Ratio

	.74 Gal Kit	3.7 Gal Kit
Part A:	1 gal. (short filled)	5 gals. (short filled)
Zinc Filler:	14.6 lbs	73 lbs

Thinning **Spray:** May be thinned up to 20 oz/gal (16%) with Thinner #26 or #237 for ambient and warm surfaces. For extremely warm or windy conditions, may be thinned up to 20 oz/gal (16%) with Thinner #33. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Touch-Up: May be thinned up to 30% (38 oz) for small touch-up areas only by brush. Avoid re-brushing. Carboline Thinner #236E may also be used to thin this product to minimize HAP and VOC emissions. Consult Carboline Technical Service for guidance.

Pot Life 8 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

Cleanup & Safety

Cleanup Use Thinner #21 or Isopropyl Alcohol. 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 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. 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)	40°-95°F (4°-35°C)	40°-95°F (4°-35°C)	40-90%
Minimum	50°F (10°C)	20°F (-7°C)	20°F (-7°C)	30%
Maximum	95°F (35°C)	130°F (54°C)	115°F (46°C)	95%

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% R.H.	Dry to Handle	Dry to Topcoat/Recoat	Dry to Immersion Service
40°F (4°C)	4 Hours	48 Hours	4 Days
75°F (24°C)	1 Hour	18 Hours	48 Hours
90°F (32°C)	3/4 Hour	16 Hours	36 Hours

These times are based on a 3.0 mil (75 microns) 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. Humidity levels below 50% will require longer cure times. Notes: Any salting that appears on the zinc surface as a result of prolonged weathering exposure must be removed prior to the application of additional coatings. Also, loose zinc must be removed from the cured film by rubbing with fiberglass screen wire if: 1) The Carbozinc 11 VOC is to be used without a topcoat in immersion service and "zinc pick up" could be detrimental, or 2) When "dry spray/overspray" is evident on the cured film and a topcoat will be applied. For accelerated curing or where the relative humidity is below 40%, allow an initial 2-hour ambient cure followed by misting with water or steam to keep the coated surface wet for a minimum of 8 hours and until the coated surface achieves a "2H" pencil hardness per ASTM D3363.

Packaging, Handling & Storage

Shipping Weight (Approximate)	.74 Gallon Kit 22 lbs (10 kg)	3.7 Gallon Kit 103 lbs (47 kg)
Flash Point (Setflash)	Part A: 55°F (13°C) Zinc Filler: NA	
Storage (General)	Store Indoors.	
Storage Temperature & Humidity	40° -100°F (4-38°C). 0-90% Relative Humidity	
Shelf Life:	Part A: 12 months at 75°F (24°C) Part B: 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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