product data

carboline®

# Carbozinc® 11

*Includes Carbozinc 11 FG*

## Selection & Specification Data

**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**
- CZ 11 and CZ 11 FG meet Class B slip co-efficient and creep testing criteria for use on faying surfaces
- 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.
- Very good resistance to salting.
- May be applied with standard airless or conventional spray equipment.
- VOC compliant in certain areas

**CZ 11 FG**
- 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**
Minimum 2.0-3.0 mils (50-75 microns) for optimum corrosion protection. Dry film thickness up to 6.0 mils (150 microns) is acceptable.

| | | CZ 11 | CZ 11 FG |
|---|---|---|---|
| **Solids Content** | By Weight: | 79% ± 2% | 74% ± 2% |
| **Zinc Content In dry film** | By Weight: | 85% ± 2% | 79% ± 2% |

**Theoretical Coverage Rate**
CZ 11: 1000 mil $ft^2$ (24.9 $m^2$/l at 25 microns)
333 $ft^2$ at 3.0 mils (8.3 $m^2$/l at 75 microns)
CZ 11 FG: 850 mil $ft^2$ (21.2 $m^2$/l at 25 microns)
283 $ft^2$ at 3.0 mils (7.1 $m^2$/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:
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**
EPA Method 24: 4.3 lbs./gal (515 g/l)
Thinned: For use in fabrication shops only to remain in VOC compliance in accordance with EPA Standards.
7 oz/gal w/ #21: 4.5 lbs./gal ( 539 g/l)
5 oz/gal w/ #26: 4.5 lbs./gal ( 539 g/l)
5 oz/gal w/ #33: 4.5 lbs./gal ( 539 g/l)
These are nominal values.

**Dry Temp. Resistance**
Untopcoated:
Continuous: 750°F (399°C)
Non-Continuous: 800°F (427°C)
With recommended high heat 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.

## Performance Data

CZ 11

| Test Method | System | Results |
|---|---|---|
| ASTM A-325 Slip Co-efficient | Blasted steel 1 ct. CZ 11 | 0.68; meets requirements for Class B rating (6 mils DFT) |
| 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. |
| ASTM D3363 Pencil Hardness | 1 ct. CZ 11 | Pencil Hardness "2H" |
| 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. |

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: | .019-.023" |
| Output PSI: | 1500-2000 |
| 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

# *Carbozinc® 11*

## 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) | 40-90% |
| 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) | ¾ Hour | 24 Hours |
| 80°F (27°C) | ¾ Hour | 18 Hours |
| 100°F (38°C) | ¼ 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: 23 lbs (10 kg)
5 Gallon Kit: 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.**

carboline®
Coatings - Linings - Fireproofing
2150 Schuetz Rd., St. Louis, MO 63146
PH: 314-644-1000 Toll-Free: 800-848-4645
www.carboline.com

An RPM Company

August 2010 replaces May 2010