

SELECTION & SPECIFICATION DATA

Generic Type	Inorganic Zinc Silicate
Description	A low VOC member of the Carbozinc family with extraordinary corrosion resistance properties. Carbozinc 11 HS combines unparalleled performance characteristics with an ultra-low VOC formulation that meets some of the most stringent VOC restrictions.
Features	<ul style="list-style-type: none"> • Ultra-long corrosion protection as a single coat or as part of a two coat inorganic system • Exceeds two (2) times ISO 12944-9 CX testing as a single coat or as part of a two coat inorganic system • Meets ISO 12944-9 CX and AASHTO R 31 as part of a three coat zinc, epoxy, urethane system • VOC compliant in most areas • Meets Class B Slip Co-efficient • Rapid cure at ambient • Low temperature cure down to 15°F (-9°C) • Excellent as a lining for solvent storage • May be used as a weldable pre-construction primer when applied at less than 1 mil DFT
Color	Standard: Green (0300) Special Order: Grey (0700)
Finish	Flat
Primer	Self Priming
Service Temperature	<u>Untopcoated</u> Continuous: 750°F (400°C) Non-Continuous: 800°F (427°C) <u>With recommended high heat topcoats:</u> Continuous: 1000°F (538°C) Non-Continuous: 1200°F (649°C)
Dry Film Thickness	2 - 3 mils (51 - 76 microns) . 0.50-1.00 mils (12-25 microns) per coat for weldable, pre-construction primer. 2.0-5.0 mils for OEM applications in controlled environments. Dry film thickness in excess of 6.0 mils (150 microns) is not recommended.
Total Zinc Dust in Dry Film	By Weight: 84%
Solids Content	By Volume 75% +/- 2% Measured in accordance with ASTM D 2697.
Theoretical Coverage Rate	1203 ft ² /gal at 1.0 mils (29.5 m ² /l at 25 microns) 602 ft ² /gal at 2.0 mils (14.8 m ² /l at 50 microns) 401 ft ² /gal at 3.0 mils (9.8 m ² /l at 75 microns) Allow for loss in mixing and application.

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VOC Values	<p>Thinner 26 : 15.28 oz/gal: 2.95 lbs./gal (354 g/l) Thinner 33 : 15.28 oz/gal: 2.95 lbs./gal (354 g/l) As Supplied : 2.4 lbs./gal (288 g/l) Thinner 236 E : 38 oz/gal: 2.4 lbs./gal (288 g/l) Thinner 254 : 8 oz/gal: 2.73 lbs./gal (327 g/l)</p> <p>These are nominal values. When used as a pre-construction primer thin up to 38 oz/gal using exempt Thinner 236 E.</p>
Topcoats	<p>Not required for certain exposures. May be topcoated with Armorlast Series inorganic silicate finishes. May also be topcoated with Waterborne Acrylics, Epoxies, Polyurethanes, HighTemperature Silicones and other coatings as recommended by Carboline. Under certain conditions a mist coat may be required to minimize bubbling.</p>

SUBSTRATES & SURFACE PREPARATION

General	<p>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.</p>
Steel	<p>SSPC-SP6 Surface Profile: 1.0-3.0 mils (25-75 micron). Consult Carboline Technical Service for appropriate surface preparation guidelines regarding tank lining applications.</p> <p>When using under fireproofing products, defer to the primer surface preparation requirements in the product data sheet of the fireproofing product.</p>

PERFORMANCE DATA

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

Test Method	System	Results
AASHTO M300	Blasted Steel 1 ct. CZ 11 HS	No blistering or rusting of coating or any bare steel areas
ASTM A-325 or A-490 Slip co-efficient	1 ct. CZ 11 HS	0.58 meets requirements for Class B rating
ASTM B117 Salt Spray	Blasted Steel 1 ct. CZ 11 HS	No rusting or blistering; slight rust in scribe, no creepage at scribe after 70,000 hours
ASTM D3363 Pencil hardness	1 ct. CZ 11 HS	Pencil Hardness 3 H

MIXING & THINNING

Mixing	<p>Power mix base (Part A), then combine and power mix as follows. Pour zinc filler (Part B) very slowly into premixed base (Part A) with continuous agitation. Mix until free of lumps. Then add activator (Part C) and mix for another 2 minutes. Pour mixture through a 30 mesh screen. Sifting zinc through a screen will aid in the mixing process by breaking up or catching dry zinc lumps. DO NOT MIX PARTIAL KITS. Note: Will not cure without the use of the Activator as defined below.</p>
Thinning	<p>Preferred Thinner Uses and Application May be thinned up to 11 oz per 0.72 gal kit or 55 oz per 3.6 gal kit with Thinner 26, 33 or 254. In colder or low humidity environments (below 40°F /4°C) Thinner 237 may be used. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied. For use as a weldable zinc primer to achieve a recommended DFT of 0.50-1.00 mils, thin this product starting with 10% (and up to 30%) with Thinner 236E. Consult Carboline Technical Service for guidance.</p>

MIXING & THINNING

Ratio	<u>0.72 Gal Kit</u>
	Part A (Base): Short fill 1-gal
	Part C (Activator): 6.4 fl. oz.
	Part B (Zinc Filler): 14.6 lbs
	<u>3.6 Gal Kit</u>
	Part A (Base): Short fill 5-gal
	Part C (Activator): 32 fl. oz.
	Part B (Zinc Filler): 73 lbs

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

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)	The following spray equipment has been found suitable and is available from equipment manufacturers. 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 coating 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 feet; .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: 0.017-0.021" Output PSI: 2100-2500 Filter Size: 60 mesh PTFE 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.

APPLICATION CONDITIONS

Condition	Material	Surface	Ambient	Humidity
Minimum	15°F (-9°C)	15°F (-9°C)	15°F (-9°C)	30%
Maximum	95°F (35°C)	150°F (66°C)	120°F (49°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 which are as follows: material 60°F-85°F (16°C-29°C), surface & ambient 40°F-95°F (4°C-35°C) and humidity 40-90%.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Topcoat
15°F (-9°C)	16 Hours	7 Days
40°F (4°C)	4 Hours	3 Days
60°F (16°C)	2 Hours	36 Hours
75°F (24°C)	1 Hour	18 Hours
100°F (38°C)	45 Minutes	14 Hours

These times are based on a 3.0-4.0 mil (75-100 microns) dry film thickness. Higher film thickness, insufficient ventilation and/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.

For Finishing with Armorlast Series: Two hours dry to topcoat at 70°F (21°C).

Notes: Maximum recoat times are unlimited. Must have a clean, dry surface free of chalk, zinc salts, etc. per typical good painting practices. Consult Carboline Technical Service for specific information. Also, loose zinc must be removed from the cured film by rubbing with fiberglass or aluminum screen wire 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 clean potable water or steam to keep the coating wet for a minimum of 8 hours. The coating is considered cured sufficiently to topcoat and/or immersion service when the coating achieves a "2H" pencil hardness per ASTM D3363 or a minimum rating of 4 per ASTM D4752.

Recoat intervals may vary from those listed above when using under intumescent fireproofing products. Consult Carboline Technical Service for recommended cure times before applying Carboline intumescent products.

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 SDS for this product and use personal protective equipment as directed.
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. Appropriate respirators must be used by all application personnel.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A (Base): 12 months at 75°F (24°C) Part B: 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.
Storage Temperature & Humidity	40° -100°F (4-38°C). 0-90% Relative Humidity
Storage	Store Indoors. This product is solvent based and not affected by excursions below these published storage temperatures, down to 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.
Shipping Weight (Approximate)	0.72 Gallon Kit - 22 lbs (10 kg) 3.6 Gallon Kit - 103 lbs (47 kg)

PACKAGING, HANDLING & STORAGE

Flash Point (Setaflash)	Carbozinc 11 HS base: 55°F (13°C)
	HS Activator: 90°F (33°C)
	Zinc Filler: N/A

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.