

SELECTION & SPECIFICATION DATA

Generic Type	Solvent Based Inorganic Zinc
Description	Ultra-low VOC member of the Carbozinc family with extraordinary performance characteristics. Carbozinc 11 HSN combines unparalleled performance properties with a 2.4 lbs/gallon (unthinned) and 2.7 lbs/gallon (thinned) formulation that meets even the most stringent VOC restrictions. This primer is nuclear-qualified and suitable for use as a primer for steel substrates in Level 1 containment exposures under specific design criteria. Determine applicability prior to use.
Features	<ul style="list-style-type: none"> • Meets specific design criteria for nuclear Level 1 use • 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 • Low temperature cure down to 15°F (-9°C) • High zinc loading • Available in Type III (ASTM D520) zinc dust • Very good resistance to salting • May be applied with standard airless or conventional spray equipment • VOC compliant to current AIM regulations
Color	Green (0300) and Grey (0700)
Finish	Flat
Primer	Self Priming
Dry Film Thickness	2 - 3 mils (51 - 76 microns) . Dry film thickness in excess of 6.0 mils (150 microns) per coat is not recommended. When used as a weldable pre-construction primer, the recommended DFT is 0.75-1.25 mils (19-31 microns). Note: Acceptable DFT ranges are based on plant specific DBA test data. Carbozinc 11HSN has been tested in a wide DFT range scenarios. Consult Carboline for acceptable DBA test data.
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.
VOC Values	Thinner 237 : 15.28 oz/gal - 332 g/l (2.77 lbs/gal) Thinner 26 : 15.28 oz/gal - 354 g/l (2.95 lbs/gal) Thinner 33 : 15.28 oz/gal - 354 g/l (2.95 lbs/gal) As Supplied : 288 g/l (2.40 lbs/gal) Thinned (As pre-construction primer): 38.4 oz/gal w/ Thinner 26: 435 g/l (3.6 lbs/gal)

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Dry Temp. Resistance	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)
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.

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-SP10 Surface Profile: 1.0-3.0 mils (25-75 micron)
	Note: Acceptable surface preparation is based on plant specific DBA test data. Carbozinc 11HSN has been tested under various scenarios. Consult Carboline for acceptable DBA test data.

PERFORMANCE DATA

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

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

Test reports and additional data available upon written request.

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. Then add activator and mix for another 2 minutes. Pour mixture through a 30 mesh screen. DO NOT MIX PARTIAL KITS. Note: Carbozinc 11 HSN will not cure without the use of the Activator as defined below. Tip: Sifting zinc through a window screen will aid in the mixing process by breaking up or catching dry zinc lumps.
Thinning	Normally not required but may be thinned up to 11 oz per 0.72 gal kit or 55 oz per 3.6 gal kit with Thinner 26 or 33. 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 0.75-1.25 mils, thin this product 30% with Thinner 26. Consult Carboline Technical Service for guidance as required.

MIXING & THINNING

Ratio	0.72 Gal Kit Part A: 1 gallon (short fill) Activator: 6.4 fluid ounces Zinc Filler: 14.6 lbs 3.6 Gal Kit Part A: 5 gallons (short fill) Activator: 32 fluid ounces Zinc Filler: 73 lbs
Pot Life	8 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use.

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.

General	The following spray equipment has been found suitable and is available from various 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 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 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.

CURING SCHEDULE

Surface Temp.	Dry to Handle	Dry to Topcoat
15°F (-9°C)	16 Hours	7 Days
40°F (4°C)	4 Hours	72 Hours
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 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. 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 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 water or steam to keep the coated surface wet for a minimum of 8 hours or until the coated surface achieves a "2H" pencil hardness per ASTM D3363.

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. Employ normal workmanlike safety precautions.
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.

PACKAGING, HANDLING & STORAGE

Shelf Life	Part A: 12 months at 75°F (24°C) and less at higher temperatures, shelf life ends when coating becomes too thick to use. Part B: 24 months at 75°F (24°C)* Part C: Min. 24 months at 75°F (24°C)* *Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers. Note: The Carbozinc 11 HSN Base is unusable if the material is jelly-like, chunky, or does not properly atomize with spray equipment.
Storage Temperature & Humidity	40° - 120°F (4°-49°C) Store indoors. Can be stored down to 20°F (-7°C) for no longer than 30 days. 0-100% Relative Humidity
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 HSN base: 55°F (13°C) HS Activator: 90°F (33°C) Zinc Filler: N/A
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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.