



**Industrial
&
Marine
Coatings**

ZINC CLAD® II PLUS

INORGANIC ZINC-RICH COATING

PART A	B69VZ12	BASE
PART B	B69VZ13	ACCELERATOR
PART B	B69VZ15	ACCELERATOR
PART F	B69D11	ZINC DUST

PRODUCT INFORMATION

Revised 9/07

PRODUCT DESCRIPTION	RECOMMENDED USES																								
<p>ZINC CLAD II PLUS is a solvent-based, three component, inorganic ethyl silicate, zinc rich coating. This is fast drying, high solids, low VOC coating with 82%, by weight, of zinc dust in the dry film.</p> <ul style="list-style-type: none"> • Coating self-heals to resume protection if damaged • Provides cathodic/sacrificial protection by the same mechanism as galvanizing • Forms an inorganic barrier to moisture and solvents • Meets Class B requirements for Slip Coefficient and Creep Resistance, 0.67 • Meets AASHTO M-300 specification 	<p>For use over prepared blasted steel and galvanized steel in areas such as:</p> <ul style="list-style-type: none"> • Bridges • Shop or field application • As a one-coat maintenance coating or as a permanent primer for severe corrosive environments (pH range 5-9) • Ideal for application at low temperatures or service at high temperatures and/or humidity conditions • Fresh and demineralized water immersion service (non-potable) • Compliance with Class B Slip Coefficient rating when used alone or as part of a system with Steel Spec Epoxy Primer as a topcoat 																								
PRODUCT CHARACTERISTICS	PERFORMANCE CHARACTERISTICS																								
<p>Finish: Flat</p> <p>Color: Gray-Green</p> <p>Volume Solid: 76% ± 2%, mixed</p> <p>Weight Solid: 90% ± 2%, mixed</p> <p>VOC (EPA Method 24): Unreduced: <320 g/L; 2.67 lb/gal (mixed) Reduced 4%: <340 g/L; 2.8 lb/gal</p> <p>Zinc Content in Dry Film: 82% by weight</p> <p>Mix Ratio: 3 components, premeasured 3.66 gallons mixed</p> <p>Recommended Spreading Rate per coat: Wet mils: 3.0 - 6.0 Dry mils: 2.0 - 4.0 Coverage: 400 - 610 sq ft/gal approximate</p> <p>Note: Brush application is for small areas only. Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.</p> <p>Drying Schedule @ 4.0 mils wet @ 50% RH:</p> <table border="0"> <tr> <td></td> <td>@40°F</td> <td>@ 77°F</td> <td>@100°F</td> </tr> <tr> <td>To touch:</td> <td>25 minutes</td> <td>20 minutes</td> <td>5 minutes</td> </tr> <tr> <td>To handle:</td> <td>1 hour</td> <td>20 minutes</td> <td>15 minutes</td> </tr> <tr> <td>To topcoat:</td> <td>7 days</td> <td>24 hours</td> <td>8 hours</td> </tr> <tr> <td>To cure:</td> <td>7 days</td> <td>36 hours</td> <td>24 hours</td> </tr> <tr> <td>To stack:</td> <td>6 hours</td> <td>2 hours</td> <td>1 hour</td> </tr> </table> <p>Drying time is temperature, humidity, and film thickness dependent.</p> <p>Pot Life: 8 hours @ 77°F High humidity will shorten pot life</p> <p>Sweat-in-time: None required, but material should be mixed for at least 5 minutes before use</p> <p>Shelf Life: Part A - 12 months, unopened Part B - 24 months, unopened Part F - 24 months, unopened Store indoors at 40°F to 100°F</p> <p>Flash Point (mixed): 55°F</p> <p>Reducer/Clean up: Above 70°F: R2KT4, 150 Flash Naphtha Below 70°F: R2K4, Xylene</p>		@40°F	@ 77°F	@100°F	To touch:	25 minutes	20 minutes	5 minutes	To handle:	1 hour	20 minutes	15 minutes	To topcoat:	7 days	24 hours	8 hours	To cure:	7 days	36 hours	24 hours	To stack:	6 hours	2 hours	1 hour	<p>System Tested: (unless otherwise indicated) Substrate: Steel Surface Preparation: SSPC-SP10 1 ct. Zinc Clad II Plus @ 3.0 mils dft</p> <p>Adhesion: Method: ASTM D4541 Result: 12.1 MPa= 1754 lb psi</p> <p>Direct Impact Resistance: Method: ASTM D2794-92 Result: 60 in lbs.</p> <p>Dry Heat Resistance: Method: ASTM D2485 Result: 750°F*</p> <p>Flexibility: Method: ASTM D522, 180° bend, 1" mandrel Result: Passes</p> <p>Pencil Hardness: Method: ASTM D3363 Result: 3H</p> <p>Salt Fog Resistance: Method: ASTM B117, 7000 hours Result: Rating 9 per ASTM D714 for blistering Rating 9 per ASTM D610 for rusting</p> <p>Slip Coefficient (zinc only): Method: AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts Result: Class B, 0.67</p> <p>Slip Coefficient (system listed below): 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1 ct. Steel Spec Epoxy Primer @ 4.0 - 6.0 mils dft Method: AISC Specification for Structural Joints using ASTM A325 or ASTM A490 Bolts Result: Passes Class B, .56</p> <p>Provides performance comparable to products formulated to specifications Mil-P-38336 and Mil-P-46105.</p> <p>*Acceptable for use up to 1000°F when topcoated with Kem Hi-Temp Heat-Flex II 800 Aluminum.</p>
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RECOMMENDED SYSTEMS	SURFACE PREPARATION																
<p>Steel, Immersion: 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft</p> <p>Steel, Epoxy Topcoat, Atmospheric: 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft</p> <p>Steel, Polyurethane Topcoat, Atmospheric: 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft 1 ct. Acrolon 218 HS @ 3.0 - 6.0 mils dft</p> <p>Steel, Polyurethane Topcoat, Atmospheric: 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1 ct. Macropoxy 646 @ 5.0 - 10.0 mils dft 1 ct. Hi-Solids Polyurethane @ 3.0 - 4.0 mils dft</p> <p>Steel, Epoxy Siloxane Topcoat, Atmospheric 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1-2 cts Polysiloxane XLE-80 @ 3.0 - 7.0 mils dft/ct</p> <p>NOTE: 1 ct. of DTM Wash Primer can be used as an intermediate coat under recommended topcoats to prevent pinholing.</p> <p>Steel (Class B Compliant System): 1 ct. Zinc Clad II Plus @ 2.0 - 4.0 mils dft 1 ct. Steel Spec Epoxy Primer, red @ 4.0 - 6.0 mils dft</p> <p>The systems listed above are representative of the product's use. Other systems may be appropriate.</p>	<p>Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.</p> <p>Refer to product Application Bulletin for detailed surface preparation information.</p> <p>Minimum recommended surface preparation: Iron & Steel: Atmospheric: SSPC-SP6/NACE 3, 2 mil profile Immersion: SSPC-SP10/NACE 2, 2 mil profile</p> <tr> <th colspan="2" data-bbox="787 798 1477 840">TINTING</th> </tr> <tr> <td colspan="2" data-bbox="787 840 1477 892">Do not tint.</td> </tr> <tr> <th colspan="2" data-bbox="787 892 1477 934">APPLICATION CONDITIONS</th> </tr> <tr> <td colspan="2" data-bbox="787 934 1477 1228"> <p>Temperature: 20°F minimum, 100°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 40% - 90% maximum Water misting may be required at humidities below 50%</p> <p>Refer to product Application Bulletin for detailed application information.</p> </td> </tr> <tr> <th colspan="2" data-bbox="787 1228 1477 1270">ORDERING INFORMATION</th> </tr> <tr> <td colspan="2" data-bbox="787 1270 1477 1459"> <p>Packaging: 3.66 gallons total, mixed Part A: 2.21 gallon kit Part B: 0.20 gallon Part F: 73 lbs zinc dust</p> <p>Weight per gallon: 26.83 ± 0.2 lb, mixed</p> </td> </tr> <tr> <th colspan="2" data-bbox="787 1459 1477 1501">SAFETY PRECAUTIONS</th> </tr> <tr> <td colspan="2" data-bbox="787 1501 1477 1722"> <p>Refer to the MSDS sheet before use.</p> <p>Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.</p> </td> </tr>	TINTING		Do not tint.		APPLICATION CONDITIONS		<p>Temperature: 20°F minimum, 100°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 40% - 90% maximum Water misting may be required at humidities below 50%</p> <p>Refer to product Application Bulletin for detailed application information.</p>		ORDERING INFORMATION		<p>Packaging: 3.66 gallons total, mixed Part A: 2.21 gallon kit Part B: 0.20 gallon Part F: 73 lbs zinc dust</p> <p>Weight per gallon: 26.83 ± 0.2 lb, mixed</p>		SAFETY PRECAUTIONS		<p>Refer to the MSDS sheet before use.</p> <p>Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.</p>	
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DISCLAIMER	WARRANTY
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<p>The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.</p>	<p>The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</p>
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APPLICATION BULLETIN

Revised 9/07

SURFACE PREPARATION	APPLICATION CONDITIONS
<p>Zinc rich coatings require direct contact between the zinc pigment in the coating and the metal substrate for optimum performance. Surface must be dry, free from oil, dirt, dust, mill scale or other contaminants to ensure adequate adhesion.</p> <p>Iron & Steel (atmospheric service): Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.</p>	<p>Temperature: 20°F minimum, 100°F maximum (air, surface, and material) At least 5°F above dew point</p> <p>Relative humidity: 40% - 90% maximum Water misting may be required at humidities below 50%</p>
<p>Iron & Steel (immersion service): Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (2 mils). Remove all weld spatter and round all sharp edges by grinding. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.</p>	APPLICATION EQUIPMENT
<p>Note: If blast cleaning with steel media is used, an appropriate amount of steel grit blast media may be incorporated into the work mix to render a dense, angular 1.5 - 2.0 mil surface profile. This method may result in improved adhesion and performance.</p>	<p>The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.</p> <p>Reducer/Clean up Above 70°F R2KT4, 150 Flash Naphtha Below 70°F R2K4, Xylene</p> <p>Airless Spray (use Teflon packings and continuous agitation) Unit Graco 30:1 Pressure 2700 psi Hose 3/8" ID Tip019" - .021" Filter 30 mesh Reduction As needed up to 4% by volume For continuous operation in larger areas, use Speeflo Airless Commander Zinc Pump. Set ball checks to maximum travel for viscous material.</p> <p>Conventional Spray (continuous agitation required) Gun Binks 95 Fluid Nozzle 66 Fluid Hose 1/2" ID, 50 ft maximum Air Nozzle 63PB Air Hose 1/2" ID, 50 ft maximum Atomization Pressure ... 25 psi Fluid Pressure 10-20 psi Reduction As needed up to 4% by volume</p> <p>Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.</p> <p>Brush For touch up in small areas only</p> <p>If specific application equipment is not listed above, equivalent equipment may be substituted.</p>



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APPLICATION PROCEDURES	PERFORMANCE TIPS																								
<p>Surface preparation must be completed as indicated. Zinc Clad II Plus comes in premeasured containers, which when mixed provides ready-to-apply material.</p> <p>Mixing Instructions: Thoroughly agitate Binder, Part A. Using continuous air driven agitation, slowly mix all of Zinc Dust, Part F, into all of Binder Part A until mixture is completely uniform. Continue agitation and add Part B. After mixing, pour mixture through 30-mesh screen. Mixed material must be used within 8 hours. Do not mix previously mixed material with new. No "sweat-in" period is required.</p> <p>If reducer solvent is used, add only after components have been thoroughly mixed.</p> <p>Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.</p> <p>Apply paint at the recommended film thickness and spreading rate as indicated below:</p> <p>Recommended Spreading Rate per coat: Wet mils: 3.0 - 6.0 Dry mils: 2.0 - 4.0 Coverage: 400 - 610 sq ft/gal approximate</p> <p>Note: Brush application is for small areas only. Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.</p> <p>Drying Schedule @ 4.0 mils wet @ 50% RH:</p> <table border="0"> <tr> <td></td> <td>@40°F</td> <td>@ 77°F</td> <td>@100°F</td> </tr> <tr> <td>To touch:</td> <td>25 minutes</td> <td>20 minutes</td> <td>5 minutes</td> </tr> <tr> <td>To handle:</td> <td>1 hour</td> <td>20 minutes</td> <td>15 minutes</td> </tr> <tr> <td>To topcoat:</td> <td>7 days</td> <td>24 hours</td> <td>8 hours</td> </tr> <tr> <td>To cure:</td> <td>7 days</td> <td>36 hours</td> <td>24 hours</td> </tr> <tr> <td>To stack</td> <td>6 hours</td> <td>2 hours</td> <td>1 hour</td> </tr> </table> <p>Dryingtime is temperature, humidity, and film thickness dependent.</p> <p>Pot Life: 8 hours @ 77°F High humidity will shorten pot life</p> <p>Sweat-in-time: None required, but material should be mixed for at least 5 minutes before use</p>		@40°F	@ 77°F	@100°F	To touch:	25 minutes	20 minutes	5 minutes	To handle:	1 hour	20 minutes	15 minutes	To topcoat:	7 days	24 hours	8 hours	To cure:	7 days	36 hours	24 hours	To stack	6 hours	2 hours	1 hour	<p>Topcoating: Note minimum cure times at normal conditions before topcoating. Longer drying periods are required if primer cannot be water mist sprayed when humidity is low. Water misting may be required at humidities below 50% to enhance cure rate.</p> <p>Occasionally topcoats will pinhole or delaminate from zinc-rich coatings. This is usually due to poor ambient conditions or faulty application of topcoats. This can be minimized by:</p> <ul style="list-style-type: none"> • Provide adequate ventilation and suitable application and substrate temperature. • If pinholing develops during topcoating, apply a mist coat of the topcoat, reduced up to 50%. Allow 10 minutes flash off and follow with a full coat. <p>An intermediate coat is recommended to provide uniform appearance of the topcoat.</p> <p>Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.</p> <p>When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.</p> <p>Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.</p> <p>Excessive reduction of material can affect film build, appearance, and performance.</p> <p>Do not mix previously catalyzed material with new.</p> <p>Do not apply the material beyond recommended pot life.</p> <p>In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R2KT4, 150 Flash Naphtha.</p> <p>Keep pressure pot at level of applicator to avoid blocking of fluid line due to weight of material. Blow back coating in fluid line at intermittent shutdowns, but continue agitation at pressure pot.</p> <p>Application above recommended film thickness may result in mud cracking and poor topcoat appearance.</p> <p>During the early stages of drying, the coating is sensitive to rain, dew, high humidity, and moisture condensation. If possible, plan painting schedules to avoid these influences during the first 16-24 hours of curing.</p> <p>Topcoats may be applied once 50 MEK double rubs are achieved. No zinc or only slight traces should be visible. Coin hardness test can also be used.</p> <p>Refer to Product Information sheet for additional performance characteristics and properties.</p>
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CLEAN UP INSTRUCTIONS	SAFETY PRECAUTIONS																								
<p>Clean spills and spatters immediately with Reducer R2KT4, 150 Flash Naphtha or R2K4, Xylene. Clean hands and tools immediately after use with Reducer R2KT4, 150 Flash Naphtha or R2K4, Xylene. Follow manufacturer's safety recommendations when using any solvent.</p>	<p>Refer to the MSDS before use.</p> <p>Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.</p>																								
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<p>The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.</p>	<p>The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.</p>																								