

*Industrial
and
Marine
Coatings*

6.03

ZINC CLAD® II HS

INORGANIC ZINC-RICH COATING

PART D B69VZ1
PART E B69VZ3
PART F B69D11

HARDENER
BASE
ZINC DUST

INDUSTRIAL
& MARINE
COATINGS

PRODUCT INFORMATION

Revised 12/03

PRODUCT DESCRIPTION

ZINC CLAD II HS is a solvent-based, three component, inorganic ethyl silicate, zinc rich coating. This is fast drying, high solids, low VOC, coating with 83% by weight of zinc dust in the dry film.

- Meets Class B requirements for Slip Coefficient and Creep Resistance, .63
- Meets AASHTO M-300-98 Specification
- 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

RECOMMENDED USES

For use over prepared blasted steel and galvanized steel in areas such as:

- Bridges
- Refineries
- Shop or field application
- Drilling rigs
- 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)

PRODUCT CHARACTERISTICS

Finish: Flat

Color: Gray-Green

Volume Solid: 76% ± 2%, mixed, ASTM D2697

Weight Solid: 90% ± 2%, mixed, ASTM D2369

VOC (EPA Method 24): Unreduced: 312 g/L; 2.6 lb/gal
mixed Reduced 4%: 335 g/L; 2.8 lb/gal

Zinc Content in Dry Film: 83% by weight

Mix Ratio: 3 components, premeasured
3.63 gallon mixed

Recommended Spreading Rate per coat:

Wet mils: 4.0 - 8.0
Dry mils: 3.0 - 6.0
Coverage: 203 - 406 sq ft/gal approximate

Note: Brush application is for small areas only.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

Drying Schedule @ 8.0 mils wet @ 50% RH:

	@ 40°F	@ 77°F	@ 90°F
To touch:	20 minutes	20 minutes	20 minutes
To handle:	20 minutes	20 minutes	20 minutes
To recoat:	36 hours	24 hours	12 hours
To cure:	60 hours	36 hours	24 hours
To stack	2 hours	2 hours	2 hours

Drying time is temperature, humidity, and film thickness dependent.

Pot Life: @ 55°F @ 77°F @ 90°F
8 hours 8 hours 8 hours

High humidity will shorten pot life

Sweat-in-time: None required, but material should be mixed at least 5 minutes before use

Shelf Life: Part D - 24 months
Part E - 12 months
Part F - 24 months
Store indoors at 40°F to 100°F

Flash Point (mixed): 66°F PMCC, mixed

Reducer/Clean up:

Below 80°F: R7K58
Above 80°F: R7K216

PERFORMANCE CHARACTERISTICS

System Tested: (unless otherwise indicated)

Substrate: Steel
Surface Preparation: SSPC-SP10
1 ct. Zinc Clad II HS @ 3.0 mils dft

Adhesion:

Method: ASTM D4541
Result: 633 psi

Abrasion Resistance:

Method: ASTM D4060, CS17 wheel, 1000 cycles, 1kg load
Result: 42.7 mg loss

Accelerated Weathering - QUV:

Method: ASTM D4587, QUV-A, 12,000 hours
Result: Passes

Corrosion Weathering:

Method: ASTM D5894, 30 cycles, 10,000 hours
Result: Rating 10 per ASTM D714 for blistering
Rating 8 per ASTM D610 for rusting

Direct Impact Resistance:

Method: ASTM D2794-92
Result: 100 in lbs.

Dry Heat Resistance:

Method: ASTM D2485
Result: 750°F

Flexibility:

Method: ASTM D522, 180° bend, 1" mandrel
Result: Passes

Immersion Resistance (untopcoated):

Method: @ 77°F
Result: Crude Oil, chemicals pH 5-9, fresh and demineralized water, gasoline

Pencil Hardness:

Method: ASTM D3363
Result: 4H

Salt Fog Resistance:

Method: ASTM B117, 10,000 hours
Results: Rating 10 per ASTM D714 for blistering
Rating 8 per ASTM D610 for rusting

Slip Coefficient, zinc only:

Method: AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts
Result: Class B, 0.63

Provides performance comparable to products formulated to specifications Mil-P-38336 and Mil-P-46105.



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RECOMMENDED SYSTEMS

Steel, Immersion:

1 ct. Zinc Clad II HS @ 3.0 - 6.0 mils dft

Steel, Atmospheric:

1 ct. Zinc Clad II HS @ 3.0 - 6.0 mils dft

2 cts. Sherwin-Williams Acrylics
Sherwin-Williams Epoxies
Sherwin-Williams Polyurethanes with Epoxy intermediates

NOTE: 1 ct. of DTM Wash Primer can be used as an intermediate coat under recommended topcoats to prevent pinholing.

SURFACE PREPARATION

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.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

Iron & Steel:

Atmospheric: SSPC-SP6, 2 mil profile
Immersion: SSPC-SP10, 2 mil profile

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature: 20°F minimum, 100°F maximum
(air, surface, and material)
At least 5°F above dew point
Relative humidity: 40% - 90% maximum
Water misting may be required at humidities below 50%

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging: 3.63 gallons total, mixed
Part D: 22 oz. container
Part E: 2.21 gallon kit
Part F: 73 lbs zinc dust

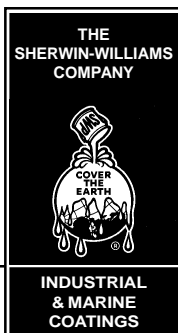
Weight per gallon: 26.8 ± 0.3 lb, mixed

SAFETY PRECAUTIONS

Refer to the MSDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

The systems listed above are representative of the product's use. Other systems may be appropriate.



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APPLICATION BULLETIN

Revised 12/03

SURFACE PREPARATION

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 good adhesion.

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. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10. 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.

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. 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 to a minimum 1/4" radius. Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

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.

APPLICATION CONDITIONS

Temperature: 20°F minimum, 100°F maximum
(air, surface, and material)
At least 5°F above dew point

Relative humidity: 40% - 90% maximum
Water misting may be required at humidities below 50%

APPLICATION EQUIPMENT

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 compatible with the existing environmental and application conditions.

Reducer/Clean up

Below 80°F Reducer #58, R7K58
Above 80°F Reducer #216, R7K216

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 Spee-Flow Airless Commander Zinc Pump. Set ball checks to maximum travel for viscous material.

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

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.

Moisture trap required in air line.

Brush For touch up in small areas only

If specific application equipment is listed above, equivalent equipment may be substituted.



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APPLICATION PROCEDURES

Surface preparation must be completed as indicated. Zinc Clad II HS comes in premeasured containers, which when mixed provides ready-to-apply material.

Mixing Instructions:

Thoroughly agitate Binder, Part E. Using continuous air driven agitation, slowly mix all of Zinc Dust, Part F, into all of Binder Part E until mixture is completely uniform. Continue agitation and add Hardener, Part D. 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.

If reducer solvent is used, add only after components have been thoroughly mixed.

Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

Wet mils:	4.0 - 8.0
Dry mils:	3.0 - 6.0
Coverage:	203 - 406 sq ft/gal approximate

Note: Brush application is for small areas only.

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

Drying Schedule @ 8.0 mils wet @ 50% RH:

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To Stack	2 hours	2 hours	2 hours

Pot Life:	@ 55°F	@ 77°F	@ 90°F
	8 hours	8 hours	8 hours

High humidity will shorten potlife.

Sweat-in-time: none required, but material should be mixed for at least 5 minutes before use

PERFORMANCE TIPS

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%.

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:

- 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.

An intermediate coat is recommended to provide uniform appearance of the topcoat.

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

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.

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.

Excessive reduction of material can affect film build, appearance, and performance.

Do not mix previously catalyzed material with new.

Do not apply the material beyond recommended pot life.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #58, R7K58.

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.

Application above recommended film thickness may result in mud cracking and poor topcoat appearance.

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.

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.

Refer to Product Information sheet for additional performance characteristics and properties.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #58, R7K58. Clean hands and tools immediately after use with Reducer #58, R7K58. Follow manufacturer's safety recommendations when using any solvent.

SAFETY PRECAUTIONS

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