



Protective & Marine Coatings

ZINC CLAD® II N INORGANIC ZINC-RICH COATING

PART E B69V99 BINDER
PART F B69D99 ZINC DUST

Revised June 29, 2017

PRODUCT INFORMATION

6.02N

PRODUCT DESCRIPTION

ZINC CLAD II N is a solvent-based two-package, inorganic ethyl silicate, zinc-rich coating.

- Meets SSPC-Paint 20 Type I-C, Inorganic, Level 1
- Meets Class B requirements for Slip Coefficient and Creep Resistance, .52
- Meets AASHTO M-300 specification
- 85% zinc content in dry film
- Coating self-heals to resume protection if damaged
- Rapid cure 15 minutes to touch (see drying schedule below)
- Low temperature cure to 0°F (-7°C)
- This product meets specific design requirements for nuclear safety related qualification*.
- This product is quality manufactured to the requirements of 10 CFR 50 Appendix B and ANSI/ASME NQA-1

*DBA Qualification for LOCA is NRC license specific to the facility

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Gray-green
Volume Solids:	62% ± 2%, ASTM D2697, mixed
Weight Solids:	82% ± 2%, mixed
VOC (calculated):	Unreduced: <500 g/L; 4.17 lb/gal mixed Reduced 10%: <500 g/L; 4.17 lb/gal
Zinc Content in Dry Film:	85% by weight
Dry Film Density (calculated):	> 100 lb/cu. ft. mixed
Mix Ratio:	2 components; premeasured 1.50 gallons (5.7L) mixed 5 gallons (18.9L) mixed

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	3.5 88	6.5 163
Dry mils (microns)	2.0 50	4.0 100
~Coverage sq ft/gal (m²/L)	248 6.1	496 12.2
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	995 24.3	

Dry film thickness in excess of 6.0 mils (150 microns) per coat is not recommended.

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 5.0 mils wet (125 microns):

@ 55°F/13°C @ 77°F/25°C @ 100°F/38°C
50% RH

	@ 55°F/13°C	@ 77°F/25°C	@ 100°F/38°C
Rain resistant:	1 hour	20-30 minutes	15 minutes
To touch:	30 minutes	15 minutes	5 minutes
To handle:	3 hours	1-2 hours	20 minutes
To recoat:	48 hours	18 hours	18 hours
To Cure	7 days	7 days	7 days
Immersion service:	14 days	14 days	14 days
Pot Life:	18 hours	8 hours	6 hours

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

Note: High humidity will shorten the pot life.

Shelf Life:	Part E: 9 months, unopened Part F: 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	55°F (13°C), PMCC, mixed
Reducer/Clean Up:	Xylene, R2K4
Below 80°F (27°C):	Reducer #58 or Reducer 100, R2K5
Above 80°F (27°C):	Reducer #58 or Reducer 100, R2K5
Optional Reducer*:	R08SH101

*Not available in all locations. check with local representative for reducer recommendations.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Always follow project specifications. Minimum surface prep is as follows:

Steel Substrate:

Shop: SSPC-SP6 1.5-3.0 mils (38-75 microns)
Maintenance: SSPC-SP2/3 or SP11/15 1.5-3.0 mils (38-75 microns)
Immersion: SSPC-SP10 2.0-3.0 mils (50-75 microns)

SHIPPING WEIGHT

B69V99:	12.5 lbs (5.67 kg) 33.89 lbs (15.37 kg) per short-filled pail
B69D99:	22 lbs. (9.98 kg) per bag 75 lbs (34.02 kg) per bag

RECOMMENDED USES

- Nuclear Power Plants
- DOE Nuclear Fuel Facilities
- Fabrication shops
- DOE Nuclear Weapons Facilities

APPLICATION CONDITIONS

Temperature:	
air and surface:	0°F (-7°C) minimum, 120°F (49°C) maximum
material:	40°F (4.5°C) minimum At least 5°F (2.8°C) above dew point
Relative humidity:	40% - 90% maximum Water misting may be required at humidities below 50%

TINTING

Do not tint.

PERFORMANCE CHARACTERISTICS

Test Name	System	Results
Adhesion* ASTM D4541	Zinc Clad II N	1282 psi
Effects of Gamma Radiation ASTM D4082	Zinc Clad II N	Pass
Salt Fog Resistance* ASTM B117	Zinc Clad II N	3,500 hours; 0 mm scribe creep
Simulated DBA* ASTM D3911	Zinc Clad II N	Pass
Slip Coefficient Structural Joints using ASTM A325 or ASTM A490 Bolts	Zinc Clad II N	Class B, 0.58
Surface Burning ASTM E84 / NFPA 255	Zinc Clad II N	0/0
Thermal Conductivity* ASTM E1530	Zinc Clad II N	@ 100°F = 0.51 BTU/h ft °F; @ 200°F = 0.42 BTU/h ft °F

*Substrate: Steel

** Cured films of inorganic zinc coatings contain no appreciable amounts of combustible materials. Both Fire and Smoke Indices would be expected to approach 0.



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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 compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer/Clean Up

Below 80°F (27°C).....Xylene, R2K4
Above 80°F (27°C).....Reducer #58 or Reducer 100, R2K5
Optional Reducer*.....R08SH101

* Not available in all locations. Please check with local representative for reducer recommendations.

Airless Spray

(use Teflon packings and continuous agitation)

Pressure..... 1800 - 2000 psi
Hose..... 3/8" ID
Tip..... .017" - .021"
Reduction..... As needed up to 10% by volume

Conventional Spray

(continuous agitation required)

Gun..... Binks 95
Fluid Nozzle..... 66
Air Nozzle..... 63PB
Atomization Pressure..... 30 - 40 psi
Fluid Pressure..... 10 - 20 psi
Reduction..... As needed up to 10% 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.

Brush For touch-up only

If specific application equipment is not listed above, equivalent equipment may be substituted.

RECOMMENDED SYSTEMS

		Dry Film Thickness / ct.
		Mils (Microns)
Steel, Zinc Primer/Finish, immersion or atmospheric:		
1 ct.	Zinc Clad II N	2.0-4.0 (50-100)
Steel, 2-coats Zinc Primer/Finish, immersion or atmospheric:		
1 ct.	Zinc Clad II N	2.0-4.0 (50-100)
1 ct.	Zinc Clad II N	2.0-4.0 (50-100)
or		
1 ct.	Zinc Clad II N	1.5-4.5 (37.5-112.5)
1 ct.	Macropoxy 646 N	2.5-7.5 (62.5-187.5)

The systems listed above are representative of the product's use. Follow project specifications. Consult with Sherwin-Williams for applicable systems.

ORDERING INFORMATION

Packaging:

Part E: 1.5 gallons (5.7L) mixed
1.125 gallons (4.3L) in a 2 gallon (7.6L) pail
5 gallons (18.9L) mixed
3.75 gallons (14.2L) in a 5 gallon (18.9L) can

Part F: 22 lbs (10.0 Kg) zinc dust
73 lbs (33.1 Kg) zinc dust

Weight: 20.9 ± 0.2 lb/gal ; 2.5 Kg/L, mixed

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Zinc Clad II comes in 2 premeasured containers which when mixed provides 5 gallons (18.9L) of ready-to-apply material.

Mixing Instructions: Thoroughly agitate Binder Part E using low speed continuous air driven agitation. Slowly mix all of Zinc Dust Part F into all of Binder Part E until mixture is completely uniform. After mixing, pour mixture through 30-60 mesh screen. Mixed material must be used within 8 hours. Do not mix previously mixed material with new. If reducer solvent is used, add only after both components have been thoroughly mixed. Continuous agitation of mixture during application is required, otherwise zinc dust will quickly settle out.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Xylene, R2K4. Clean tools immediately after use with Xylene, R2K4. Follow manufacturer's safety recommendations when using any solvent.

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%.

- Providing adequate ventilation and suitable application and substrate temperature.
- Avoid dry spray of topcoat.
- If pinholing develops, apply a mist coat of the topcoat, reduced up to maximum allowed for the product. Allow 10 minutes flash off and complete the system.
- Apply minimum film build (wet coat) followed by finishing coat wet on wet to full system thickness.

Excessive film build, poor ventilation, and cool temperatures may cause solvent entrapment and premature coating failure.

Any salting on the zinc surface due to weathering exposure must be removed prior to topcoating.

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 Xylene, R2K4.

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.

Not recommended for severe acid or alkali exposures.

Oil base, alkyd, epoxy ester, and silicone alkyd topcoats are not recommended.

Polyurethane topcoats require a tie coat of catalyzed epoxy.

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.

Cured films of inorganic zinc coatings contain no appreciable amounts of combustible materials. Both Fire and Smoke Indices would be expected to approach 0.

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.

DISCLAIMER

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.

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