Protective & Marine Coatings

COROTHANE® I MIO-ZINC PRIMER

PART A B65A14 — **BINDER**
PART F B69D210 — **ZINC DUST**

Revised: March 10, 2021

PRODUCT INFORMATION

5.01

PRODUCT DESCRIPTION

COROTHANE I MIO-ZINC PRIMER is a two component, moisture curing urethane with micaceous iron oxide, designed for low temperature application to blast cleaned or power tool cleaned steel surfaces.

- Low temperature application - down to 20°F (-7°C)
- Meets Class B requirements for Slip Coefficient
- Abrasion resistant
- Easy to apply and recoat
- For immersion service with recommended topcoat
- Resistant to mudcracking
- Chemical resistant

PRODUCT CHARACTERISTICS

Finish:	Flat
Color:	Green
Volume Solids:	62% ± 2%, mixed
VOC (calculated):	<330 g/L; 2.75 lb/gal, mixed Reduced 3% <340 g/L; 2.80 lb/gal
Mix Ratio:	2 component, premeasured 5 gallon mix
Zinc Content in Dry Film:	60% by weight

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**5.0** 125	**6.5** 162
Dry mils (microns)	**3.0** 75	**4.0** 100
~Coverage sq ft/gal (m^2/L)	**240** 5.9	**330** 8.1
Theoretical coverage **sq ft/gal** (m^2/L) @ 1 mil / 25 microns dft	**992** 24.3	

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 *50% RH*	@ 100°F/38°C
To touch:	30 minutes	20 minutes	10 minutes
To recoat:			
minimum:	8 hours	4-6 hours	1 hour
To cure:	3 days	3 days	2 days

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

Shelf Life:	Part A - 12 months, unopened Part F - 24 months, unopened Store indoors at 40°F (4.5°C) to 100°F (38°C).
Flash Point:	98°F (37°C), PMCC, mixed
Reducer/Clean Up:	Reducer #15, R7K15

RECOMMENDED USES

- On steel where resistance to rust or corrosion undercutting is required
- As a primer in a urethane coating system for bridges, tanks, chemical, and marine structures
- Ideal for priming water assisted abrasive blasted surfaces where flash rusting or blooming limits the use of conventional zinc rich coatings
- As a spot primer on hand and power tool cleaned surfaces for lead overcoating systems

PERFORMANCE CHARACTERISTICS

Substrate*: Steel

Surface Preparation*: SSPC-SP6

System Tested*:

1 ct: Corothane I MIO-Zinc Primer @ 3.5 mils (88 microns) dft
1 ct: Corothane I Aluminum @ 3.0 mils (75 microns) dft

*unless otherwise noted below

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	24 mg loss
Adhesion	ASTM D4541	1000 psi
Corrosion Weathering (Zinc Primer/Mastic/ Aliphatic Finish)	ASTM D5894, 4032 hours, 12 cycles	Rating 9 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Direct Impact Resistance	ASTM D2794	80 in. lb. (Corothane I - Zinc Primer only)
Dry Heat Resistance	ASTM D2485	300°F (149°C) continuous, 350°F (177°C) intermittent
Flexibility	ASTM D522, 180° bend, 1/4" mandrel	Passes
Moisture Condensation Resistance (Zinc Primer/Coal Tar)	ASTM D4585, 100°F (38°C), 1008 hours	Rating 10 per ASTM D610 for rusting; Rating 10 per ASTM D714 for blistering
Pencil Hardness	ASTM D3363	2H (zinc only)
Salt Fog Resistance (Zinc Primer/Mastic/ Aliphatic)	ASTM B117, 5000 hours	Rating 9 per ASTM D610 for Rusting; Rating 10 per ASTM D714 for Blistering
Slip Coefficient*	AISC Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts	Class B, .54
Wet Heat Resistance	Non-immersion	190°F (88°C)

*Consult your Sherwin-Williams Representative regarding this product's Slip Certification document

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RECOMMENDED SYSTEMS

		Dry Film Thickness / ct. Mils	(Microns)
Immersion Service			
Steel:			
1 ct.	Corothane I MIO-Zinc Primer	3.0-4.0	(75-100)
2 cts.	Corothane I Coal Tar	5.0-7.0	(125-175)
Atmospheric Service			
Steel: Moderate Service			
1 ct.	Corothane I MIO-Zinc Primer	3.0-4.0	(75-100)
1 ct.	Corothane I Aliphatic Finish Coat	2.0-3.0	(50-75)
or	Corothane I MIO-Aluminum	2.0-3.0	(50-75)
or	Corothane I HS	2.0-3.0	(50-75)
Steel: Severe Service			
1 ct.	Corothane I MIO-Zinc Primer	3.0-4.0	(75-100)
1 ct.	Corothane I Iron Ox B	3.0-5.0	(75-125)
1 ct.	Corothane I Aliphatic Finish Coat	2.0-3.0	(50-75)
Previously Painted Steel:			
Spot prime bare steel with 1 coat of Corothane I MIO-Zinc Primer			
1 ct.	Corothane I Iron Ox B	3.0-5.0	(75-125)
1 ct.	Corothane I Aliphatic Finish Coat	2.0-3.0	(50-75)

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

SAFETY PRECAUTIONS

Refer to the SDS 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.

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/NACE 3, 2 mil (50 micron) profile or SSPC-SP3, 2 mil (50 micron) profile (on non slip critical projects)
- Immersion, with recommended topcoat: SSPC-SP10/NACE 2, 2 mil (50 micron) profile
- Spot Prime/Touch-Up: SSPC-SP3

Ductile Iron Pipe:
- Atmospheric: NAPF 500-03-03 Power Tool Cleaning
- Buried & Immersion: NAPF 500-03-04 Abrasive Blast Cleaning
- Cast Ductile Iron Fittings: NAPF 500-03-05 Abrasive Blast Cleaning

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Do not tint.

APPLICATION CONDITIONS

Temperature:
- air and surface: 20°F (-7°C) minimum, 100°F (38°C) maximum
- material: 45°F (7°C) minimum. Do not apply over surface ice

Relative humidity: 30% minimum, 99% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:
- Part A: 4 gallons (15.1L) in a 5 gallon (18.9L) container
- Part F: 60 lb (7.2 Kg/L) Zinc Dust

Weight: 22.05 ± 0.2 lb/gal ; 2.65 Kg/L

WARRANTY

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.

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APPLICATION BULLETIN

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SURFACE PREPARATIONS

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.

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 / 50 microns). 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.

Iron & Steel (atmospheric service)
Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Power Tool Cleaning per SSPC-SP3. Commercial Blast Cleaning per SSPC-SP6/NACE3 is also acceptable. 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 / 50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs.

Ductile Iron Pipe, Atmospheric Service:
Minimum surface preparation is Power Tool Clean per NAPF 500-03-03. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

Ductile Iron Pipe, Buried and Immersion Service:
Minimum surface preparation is Abrasive Blast Cleaning per NAPF 500-03-04. Ductile iron pipe external surfaces, in some cases, can be damaged by excessive abrasive blast cleaning beyond this standard. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

Ductile Iron Fittings:
Minimum surface preparation is Abrasive Blast Cleaning of Cast Ductile Iron Fittings per NAPF 500-03-05. Remove all oil and grease from surface by Solvent Cleaning per NAPF 500-03-01.

Previously Painted Surfaces
If in sound condition, clean the surface of all foreign material. Smooth, hard, or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this product attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

	Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal		Sa 3	Sa 3	SP 5	1
Near White Metal		Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast		Sa 2	Sa 2	SP 6	3
Brush-Off Blast		Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	Rusted	C St 2	C St 2	SP 2	-
	Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	Rusted	C St 3	C St 3	SP 3	-
	Pitted & Rusted	D St 3	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature:	
air and surface:	20°F (-7°C) minimum, 100°F (38°C) maximum
material:	45°F (7°C) minimum Do not apply over surface ice
Relative humidity:	30% minimum, 99% maximum

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 .....Reducer #15, R7K15

Airless Spray

Pump	30:1
Pressure	1800-2000 psi
Hose	1/4" ID
Tip	.015" - .019"
Filter	60 mesh
Reduction	As needed up to 10% by volume

Conventional Spray

Unit	Graco	Binks
Gun	900	95
Fluid Nozzle	070	66/65
Air Nozzle	947	66PR
Atomization Pressure	60-70 psi	60-70 psi
Fluid Pressure	15-20 psi	15-20 psi
Reduction	As needed up to 10% by volume	

Brush

Brush	Natural Bristle
Reduction	As needed up to 10% by volume

Roller

Cover	3/8" natural or synthetic with solvent resistant core
Reduction	As needed up to 10% by volume

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

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APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Thoroughly agitate binder, Part A. Using continuous, air driven agitation, slowly mix all of the Zinc Dust, Part F, into Part A until mixture is completely uniform. After mixing, pour through a 50 mesh filter.

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

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

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	**5.0** 125	**6.5** 162
Dry mils (microns)	**3.0** 75	**4.0** 100
~Coverage sq ft/gal (m^2/L)	**240** 5.9	**330** 8.1
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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 *50% RH*	@ 100°F/38°C
To touch:	30 minutes	20 minutes	10 minutes
To recoat:			
minimum:	8 hours	4-6 hours	1 hour
To cure:	3 days	3 days	2 days

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

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

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer #15, R7K15. Clean tools immediately after use with Reducer #15, R7K15. Follow manufacturer's safety recommendations when using any solvent.

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PERFORMANCE TIPS

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 adhesion.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer #15, R7K15.

Pour a small amount of Reducer #15, R7K15 over the top of the paint in the can to prevent skinning or gelling.

Place a temporary cover over the pail to keep excessive moisture, condensation, fog, or rain from contaminating the coating.

Do not use continuous agitation.

It is recommended that partially used cans not be sealed/closed for use at a later date.

Corothane KA Accelerator is acceptable for use. See product data sheet for details.

Topcoating: Occasionally, topcoats will "outgas" under some conditions of application and curing. When "outgassing" occurs, apply a thinned-down, low wet film thickness mist coat. Allow it to tack up and seal the surface. Then apply a full wet film thickness coat

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

SAFETY PRECAUTIONS

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