

## MPCI Product Data Sheet

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# Corrblock™CWS

Anti-corrosion, Chemical Resistant Coating for Cold, Wet Steel

### PRODUCT DESCRIPTION

Corrblock™CWS is a three part epoxy silicate coating that provides anti-corrosion protection in demanding environments. It cures completely in a wide range of operating environments and temperatures, including pipes at 33°F that are wet with condensation. The coating is a unique formulation of epoxy and titanium ethyl silicates that enables an ambient cure system, yielding a pinhole free film. The coating is VOC compliant, and is easy to apply by air or airless spray equipment or brush. When curing, a strong interpenetrating network forms within a unique epoxy base to provide exceptional toughness, adhesive strength, hardness, and crack resistance. The coating has a very low water permeability coefficient and serves as an effective moisture barrier.

### FEATURES

- Completely cures on pipes wet with condensate in a temperature range from 33°F to 150°F
- Resists cracking and delamination
- Long service life: ~15 years
- Provides a strong substrate for topcoats or insulation
- Suited for most chemical processing, petroleum, and manufacturing environments
- Superior adhesion on a wide range of primed and unprimed materials
- Direct-to-metal application
- Reduces application, logistics, and maintenance costs
- High solids
- Good thermal cycling resistance
- Excellent chemical resistance
- Excellent moisture barrier
- Tolerant of surface variability

### USES

- The exterior of metal pipes used in petro-chemical industries that are cold, wet from condensation, and cannot be dried for the application of coating because of the need to keep manufacturing processes on line
- Pipes that can be affected by corrosion-under-insulation
- Metal surfaces in and around cooling towers
- Refrigeration equipment
- Output pipes from petroleum pumping stations
- Steel marine structures that tend to remain damp during coating application
- Metal structures, such as steel bridges, that are coated during cold weather in wet conditions

### SUBSTRATES AND SURFACE PREPARATION

#### General

Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating. Pitted and corroded substrate may require decontamination with a salt remover solution in water.

#### Carbon Steel

Immersion: SSPC-SP5

Insulated (recommended): SSPC-SP10

Insulated (minimum): SSPC-SP6

Surface Profile: 2.5 – 3.0 mils

Limited Access: SSPC-SP11 is a suitable preparation method for small and hard to access areas or when sandblasting is prohibited.

#### Stainless Steel

Same as Carbon Steel.

#### Galvanized Steel

General: surface preparation should not remove the protective galvanized plating. Clean surface per SSPC-SP1.

#### Aluminum

Same as Galvanized Steel.

#### Concrete

Prepare in accordance with SSPC SP-13.

#### Previously Painted Surfaces

Lightly sand or abrade to roughen and degloss the surface. Existing paint must attain a minimum 5B rating in accordance with ASTM D3359 "X-Scribe" adhesion test.

### CURING AND ADHESION ON WET STEEL

The curing process is moisture activated. During curing any dampness on the surface is initially absorbed into the coating and takes part in the curing reaction. Excess moisture is evaporated into the air. Tests have demonstrated the ability to cure to a uniformly hard coating, and bond tightly, even when the coating is applied to surfaces with a thin film of water. The coating should not be applied if the water is forming pools or running down the surface.

During curing, silanes and titanates react aggressively to underlying metal oxides for a tight bond.

After it is cured, the coating prevents corrosion through its low moisture permeability and anti-corrosive zinc additives.

### CHEMICAL RESISTANCE

Corrblock™CWS is resistant to most organic and inorganic type reagents. It is resistant to oxidizers, acids, alkalis, and neutral salt solutions.

Chemical resistance to inorganics includes: resistance to aliphatic/aromatic/chlorinated hydrocarbons, alcohols, glycols, ethers, glycol ethers, and carboxylic acids.

**APPLICATION EQUIPMENT**

**Spray Application (General)**

This is a high solids coating which requires two coats to achieve final recommended film thickness. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

**Conventional Spray**

Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, 0.070" 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: 0.015" – 0.031"
- Output PSI: 2100 – 2300
- Filter Size: 50 mesh

**Brush and Roller (General)**

Multiple coats will be required to obtain desired appearance, recommended dry film thickness, and adequate hiding. Avoid excessive re-brushing, re-rolling.

**Brush**

Use a medium bristle brush

**Roller**

Use a short-nap synthetic roller cover with phenolic core.

**MIXING AND THINNING**

**Mixing**

Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.

**Ratio:** 17:6:2 (A:B:C)

**Thinning:** None

**Pot Life:** 4 hrs @ 72°F, 6 hrs if sealed.

**CLEANUP AND SAFETY**

**Cleanup**

Use isopropyl alcohol, MEK, or acetone. In case of spillage, absorb and dispose per local regulations.

**Safety**

Follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Wear appropriate Personnel Protective Equipment.

**Caution**

Flammable materials – 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**

Shipping Weight: 1 Gallon Kit – 13.2 lbs  
5 Gallon Kit – 63.2 lbs

Flash Point: Part A: 78°F, Part B: 148°F, Part C: 72°F

Storage Temperature & Humidity: Store indoors at 32°F to 100°F, at ambient Relative Humidity.

**APPLICATION CONDITIONS**

Condition	Material	Surface	Ambient	Humidity
Normal	60-85°F	33°F	60-90°F	20 - 95 %
Minimum	33°F	32°F	33°F	20%
Maximum	100°F	120°F	110°F	95%

**CURING SCHEDULE**

Surface Temp.	Dry to Recoat	Dry to Topcoat	Final Cure	Cure for Insulation
33°F - 40°F	1 hr to 24 hrs	3 days	7 days	48 hrs
50°F - 60°F	1 hr to 24 hrs	3 days	7 days	24 hrs

**TECHNICAL DATA**

Characteristics	Corrblock™ CWS
Generic Type	Epoxy - Silicate
Mix Ratio by volume	17:6:2
Temperature resistance	
Continuous	250°F
Percent (%) Solids by volume	88% solids
VOC	1.46 lbs/gal (175 grams/liter)
Recommended total dry film thickness	12 - 20 mils
Dry film thickness per coat	10 - 12 mils
Wet film thickness per coat	14 - 16.5 mils
Application Temperature	33°F Ambient or above
Cure time: To recoat	Minimum 1 hour @ 50°F
Weight per gallon	12 lbs
Pot life: @ 50°F	8 hrs
@ 75°F	5 hrs
@ 90°F	4 hrs
Shelf life	1 year

**PERFORMANCE TEST DATA**

Test	Results
Water (5% salt) immersion	Continuous immersion - 5 mos.
Thermal Cycling	Continuous 350°F into 15°F freezer. 50 cycles. No cracking or delamination.
Shock	From 15°F freezer into boiling water. 20 cycles. No cracking or delamination.
Hardness, ASTM D 3363	7H
Adhesion, ASTM D 3359	5A
Adhesion, ASTM D 4541	> 1000 psi
Elongation, ASTM D 2370	> 1.5%
Bending radius, ASTM D 522A	< 7%
Moisture permeability, Gravimetric absorbance	0.00027 perm-inch

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