



## GUIDE SPECIFICATION FOR POLYUREA COATING ON STEEL PILING

### DESCRIPTION

This specification details the surface preparation and product application of a slow cure / fast set marine grade spray Polyurea coating on steel pile. The product must be marine grade and have self-leveling capabilities to provide a smooth surface. This specification is for application prior to installation and to provide a compatible field applied repair material for touch up after installation. The application is designed for corrosion protect and durability during installation.

### 1.01 SUMMARY

- A. Provide labor, materials, equipment and supervision necessary to install a marine grade spray Polyurea coating system to encapsulate treating products to protect the marine environment.
- B. The manufacturer's application instructions for each product used are considered part of these specifications and shall be followed at all times.

### 1.02 SUBMITTALS

- A. Submit product data sheets and literature verifying that the product has a history for use in marine environments and meets the physical properties and composition requirements.
- B. Submit material safety data sheets.

### 1.03 QUALITY ASSURANCE

- A. Supplier Qualifications: min 10 years personnel experience in manufacturing marine grade coating products.
- B. Applicator Qualifications: The applicator shall be trained and approved by the manufacturer to apply the system. Manufacturer's written verification of applicator approval is required. Applicator must have approved equipment for applying plural component products and have an approved facility with a certified spray booth meeting all local air quality standards.

### 1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Containers and Packaging: Deliver materials in original sealed containers, clearly marked with manufacturer's logo, full product name, and lot number(s).
- B. Storage: Store materials at 70°F with careful handling to prevent damage to products. If conditions exceed these ranges, special consideration in storage must be taken. Do not store at high temperatures in direct sunlight.
- C. Protection: Protect all materials from freezing and other damage during transit, handling, storage, and installation.

### 1.05 SURFACE PREPATION

- A. Near-white blast cleaning (SSPC-SP 10/ NACE No. 2) with a 2-4 mil anchor profile.
- B. A near-white metal blast cleaned surface, when viewed without magnification, shall be free of all visible oil, greasedust, dirt, mill scale, rust, coating, oxides, corrosion products, and other foreign matter, except for staining.

### 1.06 EXAMINATION OF CONDITIONS

- A. Temperature and environmental conditions must be in accordance the data sheet.
- B. The surface temperature is a minimum 5° above the dew point and no condensation is present on the surface.
- C. Surface preparation completed and in accordance to manufacturers specification.
- D. Work lighting is within industry standards.
- E. Start of work by the installer implies acceptance of conditions.

## 1.07 REFERENCES AND STANDARDS

All references and standards shall be in accordance with:

- A. ASTM (American Society for Testing and Materials)
- B. SSPC (Society of Protective Coatings)
- C. NACE (National Association of Corrosion Engineers)

## 2.01 SUBMITALS

- A. Submit Manufacturer's MSDS and technical data sheet, containing specified requirements indicating that the product meets required Specifications.
- B. Supplier must be a manufacturer of the marine grade Polyurea with 10-years personnel experience.
- C. Applicator must submit certification of manufacturer's approval.

## APPLICATION / EQUIPMENT REQUIREMENTS

The product is applied using a high-pressure heated plural component spray system with a minimum capability of 2000-psi pressure at the spray tip. The product must be heated to and maintained at 140°F to insure proper viscosity during application. Product must be maintained at 1-1 ratio. Product must be applied in continuous coats at a rate not to avoid drips or runs. Curing time before installation is 24 hours minimum. Pilings must be fixed on each end and turned using a mechanical or manual device during application to ensure uniform thickness. Occasional pin holes are acceptable but in no case shall any pin hole continue inward to bare wood.

**2.02 MATERIALS:** Materials shall meet the following physical property requirements.

## MIXING INSTRUCTIONS

The B-side component must be pre-mixed prior to application at 400-600 RPM's. Application temperature range is between 0°F to as high as 120°F.

## APPLICATION THICKNESS

The product must be applied at 125 mil average coating thickness on ALL surfaces, providing no location has +/- 5% of thickness. Coverage rates are subject to the substrate profile. An electronic thickness measuring meter shall be used to verify thickness during application process.

## PRODUCT REQUIREMENTS, DESCRIPTION AND CHARACTERISTICS

**POLYUREA:** Two-component 1-1 slow cure spray based Polyurea coating shall be solvent free and 100% solids. Polytetramethylene ether glycol (PTMEG), 2, 4-toluene diisocyanate, and aromatic diamine based Polyurea elastomer designed for marine environments. The products requirements include a 4-8 minute tack free time, 45-second gel time and self-leveling capabilities. **Non-PTMEG based products to be excluded.**

## PRODUCT COLORS

Available standard colors are Black, Tan, Brown and Gray. Colors will fade due to UV instability. Black and earth tones are recommended. Normal weathering will dull the finish of the product over time.

## 2.03 SPRAY POLYUREA SYSTEM PHYSICAL PROPERTY REQUIREMENTS

### PRODUCTS: MFI-SL08, Marine Fenders International, Inc.

Total Solid Content	100 %	Color stability (aromatic)	None
Mixing ratio A-B	1-1	Tear (ASTM D624)	520 lbs / in
Tack free @ 72°F	8-minutes	Hardness (ASTM D2240)	80-90 A
Gel time	45-seconds	Permeability (ASTM E96)	0.067 WVT
V.O.C Content	0%	Burn Rate (typical) (ASTM D 635)	1.52 cm/min
Elongation (ASTM D412)	375 %	Taber Abrader (ASTM D 4060) 500 cycles	.094/1000
Tensile (ASTM D412)	2600 psi	Flex-Life (ASTM D 1052) (cycles)	200,000

## 2.04 FIELD REPAIR PRODUCT - PRODUCT REQUIREMENTS, DESCRIPTION AND CHARACTERISTICS

Field applied repair material is a two-component mixed, 8-minute tack free and 2-minute gel time, Polyurea product that is applied and troweled to the appropriate thickness.

### REPAIR MATERIAL - MFI-TROWEL PATCH, Marine Fenders International, Inc.

#### FIELD APPLIED REPAIR MATERIAL

Total Solid Content	100 %
Mixing ratio A-B	1-1
Tack free @ 72°F	8-minutes
Gel time	2-minutes
Color stability (aromatic)	none
Hardness (ASTM D2240)	80-90 A
V.O.C. Content	none
Permeability (ASTM E96)	0.067 WVT
Viscosity	<b>A</b> -1000 cps <b>B</b> -700 cps

#### FIELD APPLIED QUALITY

- A. Coating container be clearly marked designating each A & B component.
- B. Maintain spray and other installation equipment in proper operating condition throughout installation. Provide reserve equipment as required.

#### MATERIAL STORAGE, SAFTY AND HANDLING PROCEEDURES

Shelf life: 12- months from the original manufacturing date, (unopened and in the original Containers). Store material indoors @ 70°F. Check for material separation prior to blending. Dispose of all empty containers or drums according to regional or local regulations. Refer to The Society of Protective Coatings SSPC-TU8 for safety, including recognition of hazard and PA protection.

**WARRANTY:** See manufacturer's standard material warranty.

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**PRODUCTS:** MFI SL08 Spray Polyurea marine grade coating, MFI- trowel applied marine coating.

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