

DESIGN SPECIFICATION GUIDE FOR CHEMONITE® (ACZA) PRESSURE TREATED COASTAL DOUGLAS-FIR PILING

1.0 ROUND TIMBER PILING

All piling shall be Coastal Douglas-fir in accordance with the latest revision of **ASTM D25. Friction piles** (ASTM D25 Table 1) are specified with a minimum circumference of ____ (as measured in inches) at 3 feet from the butt end. End-bearing piles (ASTM D25 Table 2) are specified with a minimum circumference of ____ (as measured in inches) at the extreme tip.

2.0 PRESSURE TREATMENT

Coastal Douglas-fir piling shall be pressure-treated with Chemonite® **ACZA** in accordance with the latest revision of the American Wood Protection Association (**AWPA**) Standard **T1** (Processing and Treatment), Section G: Marine (Salt Water) Applications.

In sensitive aquatic environments the Western Wood Preservers Institute (WWPI) Best Management Practices (BMPs) can be specified.

Piling may be branded in accordance with **AWPA** Standard **M6**. Handling, storage and field treatment shall be in accordance with **AWPA** Standard **M4** (Care of Pressure-Treated Wood Products).

2.1 MINIMUM RETENTION REQUIREMENT

2.2 Marine Use: Dependent upon the severity of the marine-borer hazards found in U.S. Coastal Waters, varying Levels of Chemonite® **ACZA** preservative may be used to protect against various marine organisms. See **AWPA U1** map, figures 1 & 2 for marine-borer hazards in U.S. Coastal Waters.

Piling shall be full length pressure-treated with **ACZA** to a minimum net retention of **2.50** pcf of wood by assay (UC5B) in accordance with **AWPA** Standard **T1** and Section G.

3.0 Inspection and Certification. The piling supplier shall furnish a Certificate of Grade in accordance with ASTM D-25 latest revision. The Treater shall furnish Certificate of Treatment stating compliance with **AWPA** Standards for pressure treatment of timber piles. The purchaser of treated piling shall have the right to employ an independent inspection service to inspect all treated piling per **AWPA** Standard **M2** (Inspection of Treated Wood Products) or the BMP Quality Assurance Program. The independent inspector shall have the authority to reject any piling not conforming to these specifications. Safety Data Sheets shall be available upon request.

4.0 Sterilization (Conditioning of Pilings); The Douglas-fir pilings must be kiln-dried after treatment to a maximum moisture content of 19% or less prior to applying the SG E375-08 Polyurea coating system. Douglas-fir pilings must be conditioned / sterilized prior to spray coating process to achieve maximum adhesion and protection.

Refer to **AWPA** Standard **U1** Section G on marine piles paragraph **2.5 Conditioning** requires sterilization. It references **AWPA** Standard **M1** Section **1.1.5** which gives the heating requirements, which is that at the pith center a temperature of 150° F shall be maintained for at least one hour.

Field Handling Recommendations Construction: Borers, termites and decay can attack treated wood when the heavily treated outer layer is removed. It is recommended that all structures be prefabricated before treatment. Minimize problems by specifying framing and boring before treatment whenever possible. Bracing with round timber piles rather than sawn timbers is recommended below high tide. All untreated wood exposed by cutting or drilling should be adequately field treated.

Fasteners: Around water, avoid corrosion by specifying all timber products be properly air seasoned or kiln dried prior to installation. Always use hot-dipped galvanized or stainless steel hardware.

Worker Safety: Chemonite treated wood can be stored, handled and worked like untreated wood. As with any wood, wear gloves to avoid splinters, wear eye protection and a dust mask when sawing, drilling and sanding. Wash hands before eating or smoking. Dispose of cut ends in a sanitary landfill. Treated wood should not be burned in open fires or in stoves, fireplaces or residential boilers. Treated wood from commercial or industrial use may be burned only in commercial or industrial incinerators or boilers in accordance with state and federal regulations.



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GUIDE SPECIFICATION FOR MARINE GRADE POLYUREA COATING AND ENCAPSULATION OF ROUNDTIMBER PILING

DESCRIPTION

This specification details the surface preparation and product application of a slow cure marine grade spray Polyurea coating on non-treated and treated wood products for encapsulation. 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 and repairs after installation. The application is designed to prevent the leaching of treating products into the environment by applying a continuous, fully adhered coating product. The product must also provide abrasion resistance, impact resistance and resistance to marine bores.

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.

1.02 SUBMITTALS

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

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: minimum 7 years' experience and has manufactured at least 500 pilings with SG E375-08 marine grade Polyurea coating, along with a verifiable project list that meets the manufacturers specification for this product.
- 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.
- C. Pressure treated wood product only, products treated in accordance with American Wood Protection Association (AWPA) and conforming to Best Management Practices (BMPs) as promulgated by the Western Wood Preservers Institute (WWPI) will be accepted for coating.

1.04 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. WWPI (Western Wood Preservers Institute)
- D. BMPs (Best Management Practices for the use of treated wood in aquatic and other sensitive environments.)
- E. AWPA (American Wood Protection Association)

APPLICATION / EQUIPMENT REQUIREMENTS

All equipment used in the production of marine pilings coated with SG E375-08 Marine Grade Polyurea Spray Coating must be preapproved by Specguard / Marine Fenders International with written verification. 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.

APPLICATION THICKNESS

The product must be applied at 250 mil (1/4") average coating thickness on all surfaces, providing no location has +/- 20% of thickness. Coverage rates are subject to the substrate profile. To insure proper thickness, quantity of material required for surface area shall be calculated at 6.4 square feet per gallon as approved by manufacturer.

PRODUCT REQUIREMENTS, DESCRIPTION AND CHARACTERISTICS

POLYUREA (Marine Grade): Two-component 1-1 slow cure spray based Polyurea coating shall be solvent free 100% solids, non-leaching and inert when cured. Polytetramethylene ether glycol (**PTMEG Based**), 2, 4-toluene diisocyanate, and aromatic diamine based Polyurea elastomer designed for marine environments. The product must contain UV stabilizers and anti-oxidants in the system. **Product characteristic requirements:** The products tack free time must be 8-10 minute to insure proper penetration into the wood surface and crevices allowing for maximum adhesion and mechanical bonding. The product must have a 45-60 second gel time to allow self-leveling providing a smooth low friction surface. The product must meet or exceed (**ASTM D 1052**) flex life 200,000 cycles and all other physical requirements contained within this specification. Occasional pin holes are acceptable but in no case shall any pin hole continue inward to bare wood. **Non-PTMEG based and fast cure products outside the specification requirements are not acceptable.**

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: SG E-373-08, 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-min	Hardness (ASTM D2240)	80-90 A
Gel time	45-sec	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

FP-85- trowel applied

Total Solid Content	100 %
mixing ratio A-B	1-1
Tack free @ 72°F	8-10 minutes
Gel time	1-2 minutes
Color stability (aromatic)	none
Hardness (ASTM D2240)	80-90 A
V.O.C. Content	none
Permeability (ASTM E96)	0.067 WVT
Viscosity	A -1000 cps B -700 cps

WARRANTY: See manufacturer's standard material warranty.

CONTACT:

MANUFACTURER:

SPEC-GUARD / MFI

909 Mahar Ave

Wilmington, Ca 90744

Tel (310) 834-7037, (310) 722-7516

LICENSED CERTIFIED APPLICATOR:

THUNDERBOLT WOOD TREATING

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PRODUCTS: SPECGUARD, **E-375-08 Spray Polyurea Marine Grade Coating**, FP-85- trowel applied marine repair coating.