

# TAPECOAT - TC Enviroshield Series 'T' Module With TC Envirotape - Flexible Timber Pile Wrap System

## PART I GENERAL

### 1.1 Description

#### A. Work Included

1. This section specifies requirements for wrapping timber piles with petrolatum based protection modules. All products used by the Contractor, as a part of the encapsulation system, shall be manufactured by a single manufacturer to ensure product compatibility. The manufacturer of the encapsulation system shall be a member of the Steel Structures Painting Council (SSPC) or the National Association of Corrosion Engineers (NACE).
2. The manufacturer shall be ISO 9001 registered.
3. The work specified in this section consists of surface preparation of the pile and encapsulation.

### 1.2 References

- A. Federal Standards
- B. American Society for Testing and Materials (ASTM) Publications

### 1.3 Quality Assurance

#### A. Sample Installation

If so directed by the Engineer, prior to commencing production installation, each team to be protecting piles shall clean and wrap 1 pile, which shall be inspected by the Engineer and his diver/inspector. Upon approval of the sample, production may commence and approved samples shall be used by the Engineer as standard for judging the work of this section.

#### B. Manufacturer's Representative

The Contractor shall arrange for a qualified technical representative of the manufacturer of the approved system to be present at the construction site to instruct and demonstrate the application procedures.

### 1.4 Delivery, Storage, and Protection

Deliver materials in original packages, containers, boxes or crates bearing the name of the manufacturer, brand, and model. Store all materials and equipment delivered to the construction site, so that weather conditions or other potential hazardous situations are properly taken into account. Exercise particular care to avoid damaging materials throughout all lifting or handling operations.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE SYSTEMS

TC Enviroshield Series 'T' with TC Envirotape inner wrap as manufactured by The Tapecoat Company, Evanston, Illinois (800-758-6041).

## 2.2 MATERIALS

The materials used consist of a petrolatum inner layer protected by an outer jacket and sealed with stainless steel bands, top and bottom, and vertically with a moldable sealant secured with large headed stainless nails. Materials shall conform to the following respective specifications:

### A. Inner Petrolatum Material - TC Envirotape or equal:

Color -

Thickness - 60 mils

Bacteria resistance - Excellent

Low Temperature (ASTM D-1737) - Excellent

Operating Temperature - 200 degree F

### B. Outer Jacket Material - TC Enviroshield Series T:

The flexible outer jacket shall be an EPDM coated polyester scrim with integral rip-stops. It shall be new, non-rigid, domestic, virgin material. Use of reprocessed material is prohibited. The sheet shall be uniform throughout, free from dirt, oil, and other foreign matter and free from cracks, creases, wrinkles, bubbles, pits, tears, holes and any defects that may affect its service. The plasticizer system shall be such as to insure stability and adequate resistance of the barrier to fungal and bacterial degradation. The use of water-soluble compounds in the ingredients is prohibited. A black pigment shall be dispersed to produce an even color, which is fade resistant in sunlight. The barrier shall be of a width ample to encircle each pile to maintain a continuous airtight fit at the final fastening. The system shall conform to the following mechanical and physical requirements:

| <u>Property</u>                     | <u>Requirements</u>     | <u>Test Method</u> |
|-------------------------------------|-------------------------|--------------------|
| Material                            | Reinforced EPDM         |                    |
| Thickness                           | 40 Mils                 | ASTM D 751         |
| Weight                              | . 28 lb/ft <sup>2</sup> |                    |
| Specific Gravity                    | 1.15 6 0.05             | ASTM D-279         |
| Breaking strength                   | 100 LBF/IN              | ASTM D 751         |
| Elongation at break                 | 350%                    | ASTM D 751         |
| Tongue tear strength                | 35 LBF                  | ASTM D 751         |
| Brittleness point                   | -50° F                  | ASTM D 2137        |
| Ozone resistance                    | NO CRACKS               | ASTM D 1149        |
| Water Absorption mass               | 2                       | ASTM D 471         |
| <u>Heat Aging 28 Day at 240° F:</u> |                         |                    |
| Breaking Strength                   | 90 LBF                  | ASTM D 751         |
| Elongation at Break                 | 250%                    | ASTM D 412         |
| Tongue Tear Strength                | 25 LBF                  | ASTM D 751         |
| Linear Dimension Change             | ±1%                     | ASTM D 1204        |

### C. Stainless Steel Banding and Clamps:

Type 316 Stainless Steel, 3/4" wide, 0.030" thick with fully rounded smooth edges.

D. Moldable Seals (gaskets):

The moldable seal material shall be a 100% solids formulation of thermoplastic elastomeric and synthetic resins. The seal material shall conform to the following requirements:

| <u>Property</u>                 | <u>Requirements</u>               |
|---------------------------------|-----------------------------------|
| Thickness                       | 60 Mils min.                      |
| Service Temperature Flexibility | -30 to 150° F                     |
| Flexibility                     | ½” radius @ -20° F<br>No cracking |
| Water Absorption                | Less than 5%                      |

E. Nails:

Ring shank Type 316 Stainless Steel, full diameter head, 2-1/2” long, 8 gauge (0.165” dia)

Part 3 – EXECUTION

3.1 INSTALLATION

A. Cleaning and Surface Preparation

The entire surface of each pile shall be thoroughly cleaned to remove all marine growth and foreign matter for the entire length that is to be covered by the barrier wrap. The cleaning does not require the removal of surface growths from cavities or other indentations that do not come in contact with the barrier. But does require removal of all surface projections such as nails, bolts, large splinters, fouling organisms, and other surface conditions that would either penetrate the wrap or cause undue deformation. Pile wrapping must be completed within 72 hours of the cleaning of the pile, unless a longer time period is permitted by the Engineer.

B. Location

Size of Barrier Wrap: Number of piles to be wrapped shall be as indicated on the Contract Drawings. Barrier wraps shall begin at minimum top elevation 2 feet above the highest high tide location and down to a point 24” below the final mud line elevation.

C. The flexible barrier wrap (module) shall be installed as follows

1. Beginning at the top of the pile, spirally wrap the pile with water displacing petrolatum tape (min of 6” wide). Starting with a double layer at the top and then with a minimum of a 1” overlap of each previous layer. Overlap the end of each roll of tape a minimum of 6” to start a new roll. Apply sufficient pressure to the tape to provide continuous contact to the pile surface, smooth the overlaps by hand pressing out folds and pockets. Continue down the pile until the complete pile has been wrapped.
2. Position the EPDM outer wrap along the top of the piling, align the leading edge vertically & fasten the leading edge down the pile every 24” by nailing. Begin nailing at the top and nail down the pile, pulling the module vertical tight during the nailing operation. Drive the nails flush with the EPDM material, making certain the nail heads do not drive through the material.
3. Wrap the module around the piling, pull the material tight, remove the release liner and secure by nailing through the vertical batten every 6” with 2 ½” long nails, as the release liner is removed.

4. Remove the release liner from the seal at each end of module. Band the module 2" from the top over the center of the seals.
5. Repeat with the next module, if required, and position it with a 3" minimum overlap, over the previous module. Band at the center of the seal on the outer module.
6. Continue overlapping the modules until the required length of pile has been wrapped, pull the bottom release liner and install the bottom band 2" from the bottom over the center of the seal.
7. Back fill the dredged out area at the bottom of the pile to the required elevation.

A manufacturer meeting these specifications is:

The Tapecoat Company  
Evanston, IL  
Ph 800-758-6041

A local Supplier for this product is:

Schrader Co. Sales, LLC  
1326 5<sup>th</sup> Street – Suite B-2  
Marysville, WA 98270  
Ph 425-377-1550  
Fx 425-377-0408