TIDAL WRAP
CORROSION PROTECTION FOR MARINE PILINGS
TIDAL WRAP is a system that includes a complete range of products for protection of marine structures to deal with the problem of corrosion in areas of "splash" or inter-tidal as well as submerged.

These areas are particularly sensitive to splash and corrosion that are exposed to a mixture of air and seawater temperature, the perfect recipe for a highly corrosive environment.
INTRODUCTION

- Once the corrosion process starts, it is accelerated by the presence of strong currents and tides, marine growth and foreign elements such as logs and other debris coming into contact with the piles.
- If no precautions are taken to protect these structures, then they will begin to weakening with subsequent danger of loss of personnel, equipment and materials.
HISTORY

- Petrolatum Tapes have been used for this application for the past 30 years and these systems are well accepted worldwide.

- The corrosion rate in the "splash zone" for marine piling is particularly severe compared to the outside portion of the tide or totally submerged portion. Coatings for application in situ should provide protection even when applied in contaminated areas or submerged under water.
Development of such coatings have been evaluated in laboratory tests and actual field application cases that confirm that Petrolatum Tape systems and outer jackets offering mechanical protection, are ideal and convenient providing a long time corrosion protection in piles marine and remain unaffected by sulfate reducing bacteria (SRB).
THE PROBLEM AND THE SOLUTION
Corrosion in piles is not only quite high but vary according to their position in each of the areas.

The most severe corrosion is shown in the splash zone where the ratios are more than double that of the submerged part.

The area above the splash zone, you can apply a wide range of paintings as it is a generally dry environment and can make a good preparation.
In the immersed area, Cathodic Protection can be used. This type of protection is not effective in all areas.

This protection, effectively reduces corrosion in piles where the surface is completely submerged all the time or buried under the surface.

Any surface that is partially exposed to dry and / or wet surface, the cathodic system is ineffective.

Cathodic protection should be used in conjunction with an appropriate system of protection in the splash zone.
CATHODIC PROTECTION

- Additionally, any anode installed in the splash zone, a high current discharge will result if entering into direct contact with salt water. This phenomenon occurs because of the tendency of the anode to "leak" high level of currents into the salt water according to the path of least resistance steel sections of the structure under water.
CATHODIC PROTECTION

CONS

- the life of the system depends on the amount of Kg installed.
- High possibility of theft of the anodes once installed.
- Difficulty constantly monitoring the System

PROS

- Low initial cost.
- No need to bond or adhere the anodes.
Cathodic Protection

Corrosion Management for Steel Jetty Piles

**Pros:**
- Design simplicity
- Simplicity
- Entire length of pile of protected
- Corrosion control
- Commissioning
- Running costs (electricity)

**Cons:**
- Higher initial investment @ 10% -
- Bonding required of all the steel
- Running costs (electricity)
Corrosion Management for Steel Jetty Piles

Splash Zone Protection

Jetty

HWL
Sea Level
LWL

+1 meter
(NACE guideline) +1 meter

Seabed
There are many types of paints which are using different complex chemicals mixtures to combat corrosion in the marine environments.

- Epoxies.
- Polyester.
- Polyurethanes.

These solutions are ideal in dry environments where conditions are ideal for surface preparation. For marine piling applications paint has proven to be ineffective, because it cracks when it is dry, leading to costly ongoing maintenance.
PAINTS

DISADVANTAGES

- Application is usually made at the plant.
- Dependent on ideal preparation.
- Difficult to maintain in situ and demand constant maintenance.
- Initial costs are low, but the long term maintenance costs add up significantly.
PETROLATUM SYSTEMS - HISTORY

- Since 1920 Petrolatum Tape systems have been used to control corrosion of metallic surfaces underground, under water, and in the area of application.

- Corrosion control applications for marine piles, in conjunction with offering mechanical protection jackets, are recorded since the 1970's and since then hundreds of projects have been successfully installed worldwide in docks and moorings (see list of projects).
PETROLATUM SYSTEMS - HISTORY

- More than 300,000 square meters have been installed to date.
- Regular inspections of these facilities deliver excellent results recognizing these systems as the ideal splash zone solution.
SYSTEM REQUIREMENTS TO CHOOSE FOR SPLASH ZONE

An ideal system corrosion control "in situ" must meet the following requirements:

- Allow installation both above and below water.
- Ability to displace water from the metal to apply.
- Be tolerant to surface (does not dry).
- Seal holes or uneven surfaces (especially porous concrete).
- Resist displacement by water currents.
- Waterproof and saponification and emulsification.
- Resistant to microbiological action (SRB).
- Resistant to mechanical damage.
- Have long life and weather resistance (UV).
- Prevent or minimize corrosion.
- Protection anti-corrosive PCS system, provides protection in area of splash for structures of steel, concrete and wood.

- The system is ideal for environments where conditions are too severe for painting epoxies and other conventional forms of protection systems.

- The PCS system, sealed oxygen and water, and effectively stop corrosion on metal surfaces, concrete and wood.
INTRODUCTION

- The PCS system encapsulates pier piles, tube risers and pipe exposed in inter-tidal areas and splash.

- The system fits cylindrical piles and H settings, as well as members of support, reinforcement, brackets and other irregular surfaces.
THE SYSTEM AND THE SUB-PRODUCTS

- **PCS Primer**
  - Primer Petrolatum is for application on metal surfaces before wrapping with tape Petro Anti corrosion.
THE SYSTEM AND THE SUB-PRODUCTS

- PCS Mastic
  - Petrolatum Mastic is used to fill cavities on uneven surfaces before wrapping with tape PCS Anti corrosion.
THE SYSTEM AND THE SUB-PRODUCTS

- Petro Tape
  - Synthetic adhesive fabric impregnated and coated with a material-based waxes and oils, covered with neutral vaseline-based compounds and inert fibres.
THE SYSTEM AND THE SUB-PRODUCTS

- PCS Liner 6000
  - The PCS ® 6000HD series consists of a polymer proprietary polyolefin, fully protected against degradation by UV rays and corrosion with a technically advanced stabilization package.
CHARACTERISTICS AND ADVANTAGES OF THE SYSTEM

- Since its first introduction in 1929, Petrolatum Tapes have established an enviable and unrivalled asset protection performance history in a number of environments.
- PCL Liner 6000 mechanical protection has also stood the test of time in the most aggressive atmospheric and chemical environments (30 years +).
CHARACTERISTICS AND ADVANTAGES OF THE SYSTEM

- Preparation of the piling is minimum.
- Areas can be applied under water.
- Tested for more than 75 years of history of protection against corrosion.
- Resistance to water, salts, alkalis and acids.
- Application on new installations as corroded.
- Mechanical covers are usually one piece.
- High resistance to impact and tidal impact.
- High capacity UV.
- Environmentally responsible and safe to apply free maintenance for a long time.
CASE STUDIES

Some of our Jobs
Thank You!