

Oxifree Case Study Chemical Sector



Location: Industrial Complex, Bahia (BA), Brazil

Period: 26/03/08 to 03/04/08 (9 days in the plant)

Service Contractor: Tecnofink Ltda (Oxifree License Holder for Brazil)

Project Manager: Maurelii Birth

Technician: Fabricio Ferreira and Hugo Silva

Purpose:

To apply Oxifree polymeric resin coating for corrosion protection, to improve safety and reduce ongoing costs. The application of Oxifree TM198 will show its ability to seal against atmospheric corrosion under the extreme operating conditions in which the valves and flanges are subjected.

Introduction:

It has been found that there are pockets of corrosion in an advanced stage due to chemical spills from the operation of the Tower. Once the corrosion cell is formed the trend is that the damage accelerates due to the aggressiveness of the plants products combined with the corrosive action of the atmosphere and moisture in the air. Please see examples below:



Gate valves with varying corrosion damage to almost all surfaces



Ball valve with corrosion at its most critical on the elbow connector

Process:

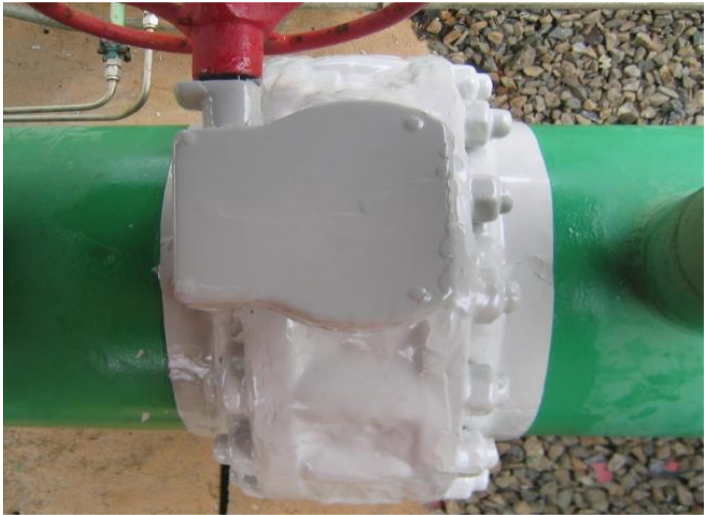
The surface preparation was completed by the use of a steel brush as well as 36 and 50 grain sandpaper. This enabled the removal of oxides and contaminants deposited on the components before the application of Oxifree.



The application of Oxifree material was completed despite adverse climatic factors of rainfall and high wind speeds. The situation can easily be overcome with the use of a work tent or other suitable habitat.

Before and After the application examples:

The mechanical components are sealed against a likely increase in the atmospheric corrosion process due to the presence of sulphur oxides. The reaction with moisture in the air leads to the formation of compounds such as aggressive H_2SO_4 . This chemical process is known as etching and causes a decrease in service life of valves and pipe fittings.



Before and after the application on flange heads:

It is recommended that an inspection be carried out to verify the efficiency of protection from Oxifree within three months from the date of application and then periodically as part of a regular preventive maintenance regime. Oxifree can be easily removed to carry out any inspection and then the same material re-applied ensuring there is no waste.



Before and After the application on flange heads and globe valves:

Protection of the substrate surface is assured with the use of Oxifree however complicated the shape as is evidenced below.





Before and after the application on an access panel at the base of the main chemical cooling tank:



Conclusion:

The coatings made on the external surfaces of the flanges and fittings of the pipes, valves and access panels will prolong their useful life, greatly reducing the chance of functional failure as well as reducing the unsightly appearance of corrosion anomalies. The situation at Deten Chemical is quite particular to the chemical production industry as general atmospheric and galvanic corrosion is greatly accelerated by the constant presence of chemical contaminants. Oxifree was able to protect the structures against normal corrosive factors as well as chemical factors specific to this site. Safety has been greatly increased as a result and the cost of equipment repair and replacement has been significantly reduced. Deten have been impressed with the results Oxifree TM198 has achieved and continue to use the product for the protection of critical components across the plant.

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