Corrosion management in acid prone environment in Hoa Phat Steel Sheet Factory **CASE STUDY**

Nov 2019

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Issues

Factory‘s operation condition:

Metal components such as bolts, flanges, joints frequently expose to HCL solution and vapor.

<u>Existing corrosion control method</u>:

Galvanized steel in combination with coating and petroleum grease application on bolts, flanges, joints.

<u>Observations:</u>

After 6 months of operation, the coating at joints, bolts, flanges peeled off, petroleum grease becomes dry in cold season, melts down in hot season, corrosion develops under the coating/gease.

→ Coating and petroleum grease are not effective in corrosion protection.

Technical requirements
on new method of corrosion control

1. After application, create a system that covers all bolts, nuts and flanges in one application and is maintenance free for at least 10 years. Not melt down or dry when weather changes;
2. Polime based coating is UV resistant and water-proofed;
3. Remove easily (as it does not adhere to the substrate) without the need for special equipment and reusable (recyclable) (for regular inspection purpose);
4. Its formula contains corrosion inhibitors that offer equipment maximum protect against contamination and corrosion. The polymeric resin surrounds the metal component providing a passive protection while allowing the oil based corrosion inhibitors to actively protect the substrate and arrest any existing or new corrosion by starving the process of oxygen and preventing moisture/ dust ingress
5. Require minimal surface preparation, and easy to apply for complicated shape components like bolts, flanges, valves, joints etc

Trial application of anti-corrosion tape Nitohullmac XG series

Site condition inspection, prepare tools, materials for trial application, observe in 2 years: 10/2017 to 10/2019 and evaluate.

Primer (XG-PN)

Tape (XG Tape)

Filler /Mastic (XG-M)

Topcoat (XG-T)

Application process

3 minutes

Inhibitor primer XG-PN

Consumption: 300gr/m2.

3 minutes

Mastic filler

10 minutes

XG tape (50% overlapping)

15 minutes

Anti-UV and waterproofing topcoat XG-T

Consumption: 300gr/m2.

Results of observation (Period: Oct/2017 to Oct/2019)

Bolt surface with **red earth color** means corrosion develops under the coating.

Red earth color becomes black
→ No more corrosion development.

Evaluations

After 2 years of trial in HCL prone area, bolt surface becomes black and retains its original quality (see foto on the left).

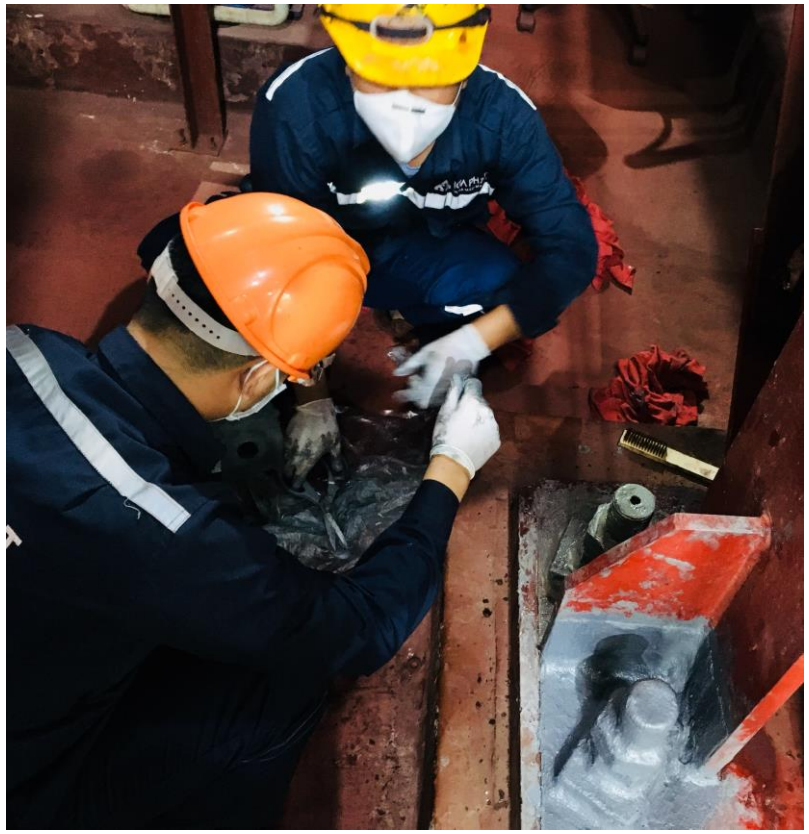
This is thank to that facts that:

+ The inhibitor primer absorbs, neutralizes rust and stabilizes corrosion;

+ The XG non-woven fabric tape, together with filler and topcoat create a closed sealing system that prevents penetration of dust, water, corrosive substances onto the metal surface.

Conclusions:

Anti-corrosion tape **Nitohullmac XG series** is completely suitable for new application and corrosion control maintenance in acid prone areas and industrial plants, an ideal solution to protection of bolts, flanges, valves, joints and components of irregular shapes that can not be protected by coating. The system can be easily removed for inspection or bolt fixing purpose.


Fotos of mass application

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