

Belzona Flange Encapsulation System for Abu Dhabi Offshore Oilfields

ID: 9994

Industry:	Oil & Gas	Customer Location:	Abu Dhabi
Application:	GSS-Gaskets, Seals and Shims	Application Date:	May 2020
Substrate:	Carbon steel		
Products:	Belzona 3412, Belzona 8411, Belzona 9111 (Cleaner Degreaser)		

Problem

Client's maintenance crew carried out routine inspections in two oilfields off the coast of Abu Dhabi. The inspection revealed severe flanges corrosion which was a result of the aggressive operating environment.



Corroded flanges in the oilfields suffered corrosion attack and needed repair.



The technician applied the first coat of Belzona 3412 to protect the flange.



The second coat of Belzona 3412 was applied on the flanges and bolts.



Six months after the application, the membrane was cut for an inspection and it was found that the flanges were in excellent condition.

Application Situation

Prior to the Belzona trials, the client had been testing a thermoplastic alternative system to address corrosion issues. However, this system required specialized application equipment, making it both uneconomical and impractical, as the equipment had to be mobilized and demobilized at each site.

Molecular Corrosion Technologies (MCT), the authorized Belzona distributor for the UAE, carried out a trial to demonstrate the performance of the Belzona 3412, encapsulating membrane system. The system performed well in service and could be applied in situ without the need for specialist tools, making it the most practical solution for protecting flanges.

For these reasons, the client adopted Belzona solution for flange protection. Belzona 3412 can be applied in situ and allows the plant operators to inspect the flanges during service. In total, more than 2,000 flanges were protected, requiring over 12,000 kg of Belzona 3412.

Application Method

The application carried out accordance with Belzona System leaflet GSS-11 - For the protection of flanges and fastenings.

1. Remove the old paint from the top and bottom edges of the flange.
2. Brush away loose contaminants and degrease the surface using a rag soaked in Belzona 9111 (Cleaner Degreaser).
3. Roughen the top and bottom edges of the pipe with emery paper.

For more examples of Belzona Know - How In Action, please visit <https://khia.belzona.com>

ISO 9001:2015
FS 695214
ISO 14001:2015
EMS 695213

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4. Apply masking tape to clearly define the coating area.
5. Apply Belzona 8411 to the flange and pipe area. Allow it to become touch dry. Belzona 8411 is required for the encapsulating membrane system in order to achieve the optimum level of corrosion protection and to allow access to bolts and flanges in the event of required maintenance.
6. Seal the gap between flange faces with bridging tape and cover bolt heads with plastic caps.
7. Mix Belzona 3412 and apply the first coat by brush at a thickness of 700–750 microns.
8. Wet out Belzona 9341 Reinforcement Tape with the mixed product to reinforce the flange and pipe edge. Allow the first coat to cure fully.
9. Once cured, apply a second coat of Belzona 3412 by brush at a thickness of 700–750 microns. Belzona 3412 is available in two colours and Belzona recommends different color for each coat.

Belzona Facts

Belzona 3412 is an encapsulating membrane that can be cut and peeled for inspection during maintenance, then resealed for continued protection.

A spokesperson from the client company explained: “The Belzona encapsulation system has performed remarkably well during our trials, far better than we had hoped, the ease of use, flexibility and durability coupled without the need for specialist installation equipment make it the perfect choice for this project and now we have secured approval we will continue to use these products across all our offshore facilities in Abu Dhabi”.

Six months after the application, the Distributor has carried out an inspection and confirmed that the condition of the flanges was found to be excellent.

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