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PRESS INFORMATION

Overcoming time constraints and wet conditions on equipment maintenance

Leaking seawater tanks repaired with surface tolerant, fast curing polymeric material

Image 1: Leaking seawater tanks at hydrocarbon storage tank farm

When performing a repair application on a metallic surface with polymeric paste grade composites, it is always desirable to work on surfaces that have been dried, cleaned and specially prepared. These surfaces offer the best conditions for an optimum adhesion and bonding of the repair material. Having plenty of time to carry out the repair does not hurt either, but unfortunately these conditions are not always available.

Some machinery and equipment is simply too vital, or too expensive, to remove from its location or even remove from service, meaning that achieving ideal surface conditions can be a challenge. Wet or oily surfaces, surfaces that cannot be grit-blasted for safety reasons and other adverse conditions can also make it difficult to achieve an optimum surface preparation. On top of this, if the equipment in need of treatment is vital to the operation of a plant or facility, and if that facility does not have the capacity for extended periods of downtime, then the repairs must sometimes be effected within a very narrow timeframe.

Cold-curing and easy-to-apply composite materials are a versatile and effective option for the repair of metallic surfaces as they do not require hot work, minimising Health & Safety concerns. However, there are some condition sets that can pose a challenge for even the most innovative of materials. This was the case at a coastal hydrocarbon storage tank farm in Genoa, Italy, where a vital piece of equipment had sprung a leak. Belzona 1212, a recently developed polymeric repair material

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designed to deal with wet substrates and short working windows, was selected to tackle this problem.

One of the vertical seawater tanks at the tank farm had sprung a leak, with severe corrosion having made a through-wall defect which was leaking seawater. Three further tanks had suffered similar corrosion damage to a lesser extent, thinning the tank walls in certain spots which threatened to develop into further leaks in eight places. This project posed a complex problem, as the damaged area could not be dried and the plant could not be shut down for longer than two hours. This tight time window meant that solutions with anything but the shortest of cure times were not an option for the client. The decision was made to use Belzona 1212 to cold-bond metal repair plates to the tanks, in order to reinforce the weakened spots and seal the through-wall defect.

Image 2: Live seawater leak

The surface areas were rapidly prepared with a mechanical hand-held tool to remove the existing paint and achieve a more suitable working surface, and Belzona 1212 was then applied directly onto the leaking and damaged areas. Metal plates were then cold-bonded using the same material, sealing the leak and reinforcing the weakened areas of the tank walls. This application was carried out in-situ directly onto the tanks, meaning that downtime was reduced to a minimum. Within two hours, the repair material had cured to a satisfactory level, allowing the client to turn their attention back to business.

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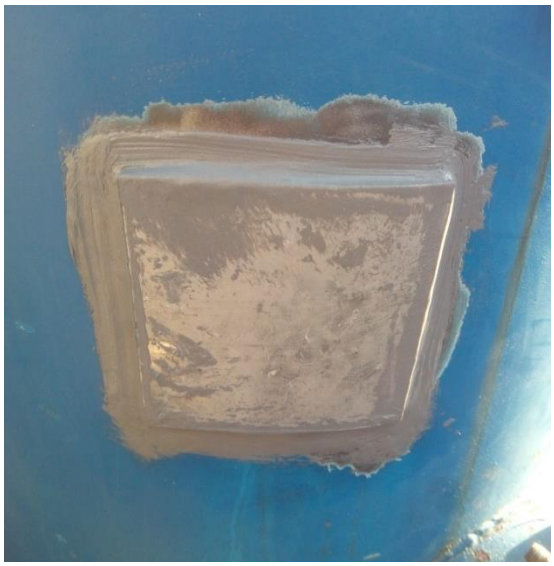

Image 3: Plate cold-bonded with Belzona 1212

The combination of fast curing and water-tolerant properties required for this repair was the main parameter when selecting the solution material. In order to minimise downtime, it is important that the repair material cures and develops its mechanical strength quickly. Belzona 1212 will cure rapidly after mixing of the two components, even in low temperatures, without compromising on durability or strength. At low ambient temperature, the system will exhibit the same robust, hard-wearing properties synonymous with Belzona's epoxy technology.

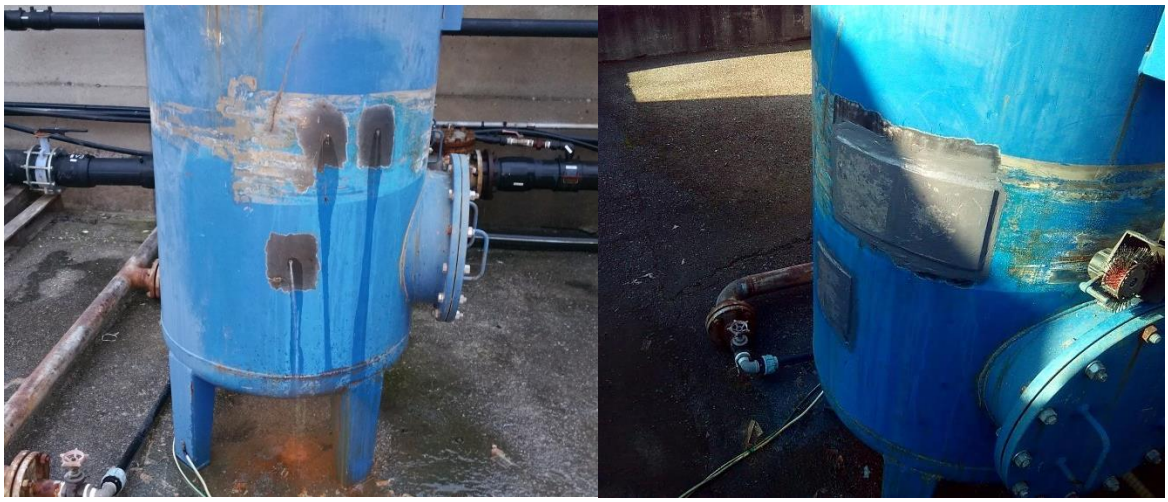

Image 4 & 5: Tank leaks sealed with Belzona 1212 cold plate bonding

The company chose this solution as it allowed them to bypass the wet surface issue without any wasteful downtime. Replacing the tanks outright would have required them to shut down the plant, drain the tanks, wait for and then install expensive replacements. In contrast, the Belzona application was completed within a matter of hours, requiring no downtime and at a cost of less than €1,200.

Where conventional repair composites would be ineffective and perform poorly, Belzona 1212 bonds tenaciously onto steel substrates even when surface

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preparation is minimal or if the substrate is heavily contaminated with oil or water. Belzona 1212 provides a cost-effective repair that can reinstate equipment for years of service.

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Notes to Editor-

About Belzona:

- Established in 1952, Belzona has pioneered innovative polymer technology that has revolutionised industrial repair and maintenance procedures.
- Belzona is a leading company in the design and manufacture of polymer repair composites and industrial protective coatings for the repair, protection and improvement of machinery, equipment, buildings and structures.
- At Harrogate, the full Belzona product range is manufactured to stringent quality and environmental control guidelines complying with the requirements of ISO 9001:2008 and ISO 14001:2004.
- Belzona has over 140 Distributors in more than 120 countries ensuring not only the availability of Belzona materials, but also specification support, project management, application and supervision services. Distributorships and their teams are supported by Belzona Corporate offices in Europe, North America and Asia.

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- High resolution images, if not supplied with the email, are available on request.
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- Can we contribute to the article you are writing? We can provide images, technical data, case studies or an interview with one of our technical service representatives. Please let us know if this would be of interest.
- Do you have an upcoming topic that we could contribute an editorial on? Please let us know the topic, preferable length and the material submission deadline.

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