Underwater Coating System Speeds Up Repair Times and Saves Down Time

Corrocoat has launched an underwater repair system designed for use on submerged surfaces such as structural steelwork, pilings and jetties. Based upon our well-established Plasmet range, the system is fresh and marine water tolerant and can be applied and cured whilst immersed.

The system comprises: Plasmet UWP – an epoxy glass flake putty, Plasmet UWL – an epoxy laminate for application with glass fibre matting and Plasmet UWT – an epoxy glass flake topcoat.

Plasmet UWP can be applied by trowel or by diver’s glove for localised repairs. After 24 hours the putty can be over-coated with Plasmet UWL to provide additional reinforcement to the repair, if required. The laminate is tolerant of water and will cure in six hours after which a top coat of Plasmet UWT can be applied to complete the repair.

By using the Plasmet underwater system the repair of submerged damaged infrastructure and pipework can be completed without outages. The system allows for immediate works to be carried out, without having to wait for spares to arrive on site, meaning significant savings can be realised by avoiding down time costs and loss in production.

All three coatings in the system exhibit excellent wet adhesion in excess of 9.5 MPa and have a cathodic disbondment rate of less than 1mm. Displaying exceptional salt spray resistance this system is ideal for use in industries such as oil and gas, power generation, marine, renewables, ports and water and waste where repair work is required in constantly submerged or tidal situations.
Three years ago, Corrocoat USA was called in when a galvanised electricity transmission pole was found to be suffering from significant corrosion. The pole was situated in a tidal splash zone and was subject to continual exposure to seawater.

On examination it was found that the sacrificial zinc lining around the base of the pole was already consumed and that the steel pole itself was corroding at an increasing rate. If left, the pole would suffer significant steel loss and would likely require expensive replacement.

Corrocoat USA was asked to prepare and protect the 48” (1.2m) diameter pole to a height of 12ft (3.7m) and to complete this work in a tidal zone – quite a challenge! Zip E was selected due to its excellent barrier protection, great adhesion and fast drying time between coats of between 10 and 15 minutes. This was critical given the inevitable time deadlines imposed by an unstoppable tide.

The project was completed over three consecutive days working from a barge. In order to access the site, the application team had to travel to the site at high tide and wait for the 90–120 minute window to prepare the pole and apply the coating. The work included removing marine growth before abrasive blasting to SSPC SP6, 50μm profile and the application of Zip E in multiple coats to achieve a dft of 600μm. Once gelled Zip E continued to cure underwater and could be over coated the next day.

The pole was inspected recently and was seen to be in a “like-new” condition. Corrocoat USA expect the coating to last 10 years before any maintenance is necessary and the client has requested that 17 more transmission poles suffering similar corrosion damage be treated. Corrocoat USA have since quoted to use this specification on poles prior to installation.
A shipping company asked Corrocoat Hellas to repair and refurbish a 900mm diameter condenser tube cover where an epoxy coating had failed. The cover was abrasive blast cleaned in accordance with ISO8501-1 Sa2½, high pressure water washed and then blasted for a second time to ensure the full removal of the original coating. This revealed significant corrosion and meant a rebuild of the cover and division plates was required. This work was completed using laminating techniques and Corroglass 600 series materials.

As a result, the cover was restored to a better-than-new condition within the 48 hour time period stipulated by the vessel’s tight schedule and the satisfied customer found it hard to believe that it was the same cover that had been delivered to Corrocoat just two days earlier.

REPAIR OUTWEIGHS REPLACEMENT

An extremely large main cooling water pump casing and cover – weighing in at around 16 tons – was delivered to Corroserve’s Leeds workshop for a full inspection, refurbishment and protective coating after 20 years of uninterrupted service in the power generation sector.

During inspection it was discovered that apart from corrosion, the split mating flanges had also warped. As a first step Corroserve’s workshop team abrasive blast cleaned the internals of the pump to ISO8501-1 Sa2½ to remove corrosion and any existing coating. This provided a surface profile of 50μm. Multiple coats of Corroglass 600 series were then hand applied to the casing and cover to achieve a minimum dft of 1500μm. The flanges were then cast in using the same material and dressed off.

Not only is Corroserve’s workshop equipped with a large capacity blast cleaning booth capable of handling extremely large workpieces, it also has overhead cranes which can lift up to 20 tons, so size was never an issue.

To finish the refurbishment, the external surfaces of the pump were also blast cleaned to Sa2½ and two coats of Plasmet ZF coating applied. The coating was spark tested to ensure no holidays were present and to reinforce the quality of the work done.

The professional preparation of all parts before coating and the use of Corroglass 600 will ensure that the pump will be in service for another 20 years.
Corrocoat Caspian won a tender to corrosion protect two oil tanks, one in each oilfield – a combined internal surface area of \(900m^2\). Each had to be prepared by abrasive blast cleaning to provide the correct surface profile for airless spray application of Polyglass VEF to a dry film thickness of \(1000\mu m\).

The Corrocoat Caspian team travelled to Western Kazakhstan from Almaty (where its facility is located), a distance of over 2,700km, working first at the Kalamkas oilfield before moving to the Zhetybai oilfield 400km away. Both jobs had to be completed in one month and one of the critical issues was the cold weather (temperatures falling to \(-20^\circ C\) at night) as well as the strong winds experienced at that time of year.

Polyglass VEF proved the ideal choice in such cold conditions as it has been successfully applied in the past at daytime temperatures of \(-15^\circ C\).
Our Belarusian operation was asked to offer a solution for the refurbishment and corrosion protection of the internals of a barometric tank operating at temperatures of 80 – 85°C – as used in the hot leaching method of potash ore processing.

The customer, JSC Belaruskali, reported that the stainless steel tanks usually have no corrosion issues but in this case, welded metal components had set in motion the corrosion process.

After just six months in service, corrosion was apparent on the internal surfaces, especially at weld points and severe pitting corrosion was evident. After abrasive blast cleaning, localised through-wall corrosion was also revealed.

Corrocoat AKZ filled all corrosion pits with Corroglass 602. Multi-directional laminating cloth wetted out with laminating resin was applied, followed by two coats of Polyglass VEF to achieve a combined dft of 1200μm. The coating was post cured and thickness and holiday testing completed.

The customer is satisfied with the solution offered and with the fact that the tank was returned to full working condition in just one week.

Al Huda Corrosion Treatment in Qatar was asked by its client, Nakilat Sitzer Wijsmuler (NSW) to inspect and recommend a programme of refurbishment and on-going protection for a number of sea suction risers.

A crew boat is a vessel specialising in the transport of offshore support personnel, deck cargo and below-deck cargo to and from offshore installations. Based in Ras Laffan Port in Qatar, NSW had identified three boats that required corrosion and fouling protection.

Al Huda recommended that the six sea suction risers be bristle blast cleaned to remove marine fouling and provide a suitable surface profile. The surface was then primed and subsequently coated with Polyglass VE HA to a required dft of 1000μm and the flanges were cast using Corroglass 602. In order to provide ongoing non-toxic protection against marine growth the internals were given a final coat of Biofoul to a dft of 300μm.

With the programme of work completed the sea suction risers are now fully corrosion protected in this highly corrosive marine environment and thanks to Biofoul, protected from fouling by marine growth.
Corrocoat SA worked with a steel fabricator who was supplying 1300 carbon steel pipes – ranging in size from DN150 to DN600 and up to 9m in length – to South Africa’s National Ports Operator in Cape Town. The pipes were to be part of a seawater firefighting system at a flammable tanker basin. The firefighting systems must be available for immediate use at all times while a tanker is docked to offload crude or load refined product.

A very high level of corrosion protection and maintenance-free service life was therefore specified by the designers. Corrocoat SA proposed using the Polyglass coating system to protect against seawater immersion and C5M atmospheric corrosion, for a maintenance cycle of 20 years.

The scope of work involved: lining internals with Polyglass VE, VEPG & VEHA to nominal dft of 1000µm; coating externals with Polyglass Zipcoat to nominal dft of 500µm. and bolt holes with Polyglass VEPG.

Corrocoat SA was able to show case histories of its linings being successfully used in seawater pipes worldwide – pipework still in operation after 30 years’ service. This was key to obtaining this contract. The ability of Polyglass to withstand the high temperatures associated with a pipe engulfed in flames, and the commensurate risk of lining disbondment blocking the pipe were also major factors. Corrocoat’s ability to supply and install the Polyglass coating system, using the Agmec internal pipe spraying technique on all pipe sizes, and to manage the project from start to finish was also a vital factor that secured the contract.
EXTENDED TRIALS PROVE POLYGLASS VEF’S BENEFITS AT ENERGY FROM WASTE FACILITY

A Japanese sewage treatment facility has invested in an anaerobic digestion system to create energy from waste. One of the major components of the system is a concentric digestion tank operating between 40 – 60°C with highly corrosive contents.

Corrocoat Japan was asked to recommend a coating system to protect the internal surfaces of the tank in both immersed and non-immersed service situations. Trials were arranged with test samples installed in situ in real life conditions and the results proved to be extremely positive. The results, backed by the excellent reputation of Corrocoat coatings, convinced the client that Corrocoat Japan was the perfect partner to protect the new digester tank and ensure the success of the client’s developments in the energy from waste sector.

The work entailed blast cleaning the internals of the stainless steel tank to SSPC 10 before applying Polyglass VEF to 850μm thickness, paying particular attention to achieve a professional finish at joints and on corners. A top coat of Polyglass Veilcoat was applied.

The performance of the finished coating in service conditions is reported to be excellent in line with the trial result and the client is very pleased with the protective coating work done.

New Data Sheets

Corrocoat Product Data Sheets have been redesigned to make them more user friendly and include the latest branding and copyright information. The existing colour coding for each product group has been retained to ensure continuity as follows:

- **Corroglass**: Purple
- **Polyglass**: Orange
- **Corrocoat**: Green
- **Fluiglide**: Light Blue
- **Plasmet**: Red

Each data sheet has been reviewed to ensure all technical data is up to date and newly completed data sheets have been sent out to Distributors/Licensees. They are also available to download from our website.

Corrocoat Products Gain Lloyds Register Approval

We are very pleased to announce that three Corrocoat coatings have gained prestigious Lloyds Register Approval.

- Polyglass Zipcoat Cert No: MATS/4990/1
- Polyglass VEF Cert No: MATS/4991/1
- Corrocoat Zip E Cert No: MATS/4992/1

A Type Approval from Lloyd’s Register demonstrates that these products conform to recognised industry quality standards, (for example, ISO Standards), International Conventions and/or the LR Rules. This provides a reliable way for Corrocoat to demonstrate the quality of its coatings and help us to stand out in the market.

We will use the highly regarded Lloyd’s Approval Mark on packaging, in promotional literature, on social media and other forms of communication. Approved Products are also listed on the LR List of Type Approved Products – the list can be searched by product, certificate number, country and producer.
Come and see us at Offshore Europe on Stand 1L31


The exhibition is recognised as Europe’s largest dedicated offshore event with a global attendance in the region of 36,000+ individuals.

Got an interesting story?

If you would like one of your recent contracts to be featured in Corrocoat News and share your engineering and coating expertise with a world-wide audience, then please get in touch. Ideally we would like a selection of hi-res images and approximately 200 to 350 words describing the contract, the challenges you faced and overcame and the benefits to the customer. To discuss how you can get involved please contact Paddy Bowes at patrickb@corrocoat.com.

Corrocoat – Leading the field

Established in 1975, Corrocoat is one of the world’s leading names in extra-durable and corrosion-resistant paints and coatings with a proven track record in many market sectors including petrochemicals, oil & gas, power generation, mining, marine, structural steel, water & waste and renewable energies.

With service lives often measured in decades, Corrocoat materials offer excellent long-term and trouble-free service, not to mention great value for money. With a network of some 36 licensed partners around the world, all offering the same highly regarded technical support, you’re bound to find a Corrocoat product nearby.

Corrocoat News is produced by:-

Forster Street, Leeds,
LS10 1PW, England
Telephone: +44 (0)113 2760 760
Fax: +44 (0)113 2760 700
E-mail: info@corrocoat.com
Visit our website

www.CORROCOAT.com