CORROCOAT NEWS

Issue 116 February 2017

Welcome to our newsletter

This February marks the second anniversary of the Corrosioneering Group rebrand and the launch of CorroServe, our stand-alone corrosion engineering and application technology company. We have had a very successful two years and even in this short time things have changed, technology has advanced and new markets have emerged. However, one constant has remained, Corrocoat's commitment to supporting customers and providing the best corrosion protection and engineering services on the market.

We would like to thank our partners, customers and staff for the success we have achieved and as we look to the future, the industries we serve can have peace of mind that we'll continue to deliver the same high-quality products and support that they've become accustomed to.

We hope you find this newsletter, which features a mix of application stories product news and technical tips interesting and informative.

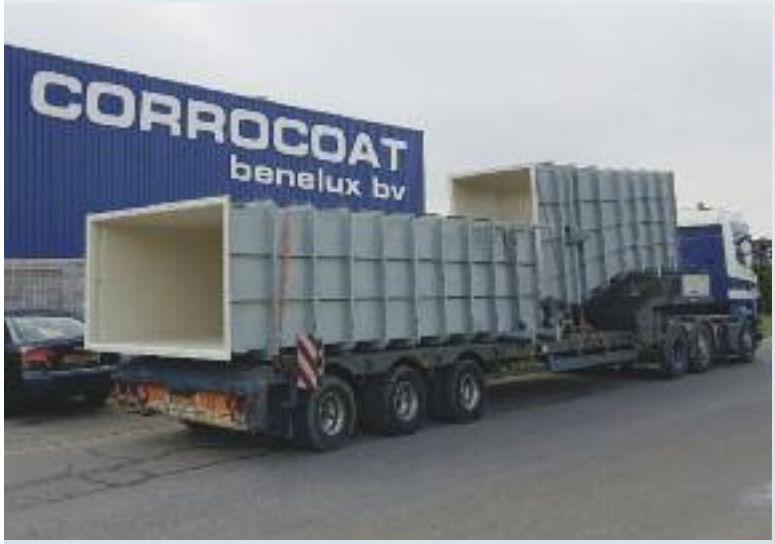
CORROCOAT VIETNAM EXTEND THE LIVES OF TRANSFORMER INSULATORS

In addition to supplying the latest corrosion protection products, Corrocoat's licenced partners also provide a range of mechanical engineering skills to extend the service life of key components. Another example of this is when Vietnam GloCoating Engineering refurbished two power transformer insulators in its workshop.

Engineers removed the failed seal, degreased and masked each insulator and aluminium ring leaving a 40 mm exposed area adjacent to the joint. This was then masked and blast cleaned with aluminium oxide grit, and Corrofill E applied to build up an even transition from ceramic insulator to aluminium ring. Epoxy laminating resin was then applied to the whole area, overlapping as required. This was then finished with Polyglass Zip E to 400 – 500 µm WFT followed by a top coat of polyurethane paint. As a result of this work the life span of the transformers has been extended by many years.

In this issue

Long Term Protection of Flue Ducts



Gas desulphurisation plants have been in use for over 35 years but the wet scrubbing process results in highly corrosive conditions in plant and flue gas ducting. The problem is made worse as a number of different aggressive corrosion conditions occur and therefore several protection products and application skills are required. We have developed a number of products to provide long-term corrosion protection in gas plants and over the years Corrocoat Benelux have used these on a number of contracts.

For Waste Management and Renewable Energy Companies -HVC in Dordrecht and AVR Rotterdam, large flues from waste burning plant have been protected with Polyglass VEF, a glass flake vinyl ester acrylic co-polymer which offers high levels of resistance in chemical environments within the full pH range.

At a sludge treatment facility operated by SNB in Holland, and industrial gas manufacturer, Air Liquide in France, Corrothane XT has been used on flue duct protection contracts. This cold cured vinyl ester hybrid was developed for coating steel where, as in these cases, high working temperatures are experienced.

All these installations are audited regularly and time has proved that Corrocoat products continue to provide the required protection and will do so for many years to come.

Costly Problem Solved at US Pellet Mill

Corrocoat USA has solved a very costly problem for one of the country's oldest pellet mills in South Georgia. An ongoing problem for the mill has been the need to constantly repair damage at the impact zone of a 56" diameter x 19'6"long exhaust elbow. Despite trying a number of different types of coating and/or rubber combinations, repairs, including patches have been necessary every three months.

The solution provided by Corrocoat USA was to: weld patches to the damaged areas; abrasive blast to a profile of 50-100 microns, apply Plasmet HTE to 1500 microns. Calcined alumina tiles with a Plasmet HTE grout were then applied followed by a final coat of HTE to finish the tiles.

After several months continuous use, the lining remains in a good condition and the operators of the pellet mill are very satisfied with the huge savings which have resulted from the Corrocoat solution.

COATING SYSTEM FOR ROAD TANKERS TRANSPORTING ACIDIC WASTE STREAMS

Corroserve was contacted by a client, who had invested in a Vantool tanker, manufactured in 304 grade stainless steel. The tanker was to be used for the transportation of variable acidic waste streams including, nitric, sulphuric and hydrochloric acids – all at variable temperatures. The requirement was for an internal tank lining coating system, which would protect this asset and guarantee longevity of service.

The tanker manways and internals were stripped and blast cleaned to SA 2½ with a profile of 50 – 100 µm. 610 g/m² quadraxial matting was applied to all the tank internals followed by a build coat of Polyglass VEF at 1200 µm and finally a veilcoat of Polyglass VE at 250 µm.

This bespoke coating system provides an industry-leading level of long term protection, over a wide temperature range, to the tanker internals, pipeways, external reservoirs and manway necks and lids, providing complete protection from and resistance to the acids being transported. As a result the client can look forward to an extended tanker life cycle and the highest level of asset protection.

TECHNICAL UPDATE

RESISTANCE TO HYDROCHLORIC ACID

Many tanks, transport tankers and process plant containing high strength hydrochloric acid have been coated using Polyglass VEF/ Corroglass 600 series with excellent results.

One downside as with most other solutions traditionally used for this demanding process environment, is a change in the colour of both the acid and coating. The hydrochloric acid and coating will typically change to a red or pink colour within 24 hours of immersion, with the colour change on subsequent cargoes of hydrochloric acid gradually reducing.

In many applications, including where the acid is used for pH control of waste, well stimulation, etc., the colour change is of no consequence, but in other instances this may not be the case. Trials have now shown that use of the Polyglass Ecoflake prevents the initial colour change, whilst still providing excellent long term corrosion protection.

STACK INTERNAL COATING FOR SLAG GRANULATION PLANT

Kirloskar Corrocoat has an excellent track record for protecting a wide range of plant against corrosion in steel plants throughout India. Its latest contract, won against stiff competition from a number of international competitors, was from JSW Steel Limited of Dolvi for the internal coating of slag granulation plant stacks. The stack heights were approx. 65 metres with diameters ranging from 3.5m to 6m. The operating conditions inside slag granulation stacks are extremely severe with temperatures of up to 160°C and abrasion from the minute particles of slag carried along with the steam.

The internal surfaces of the stacks have now been protected with Corrothane XT - a three-pack cold cured vinyl ester urethane polymer alloy with glass flake. The total area, coated at 1mm dft was 1,500 m^2.

Composite Structural Repair System qualified to ISO 24817

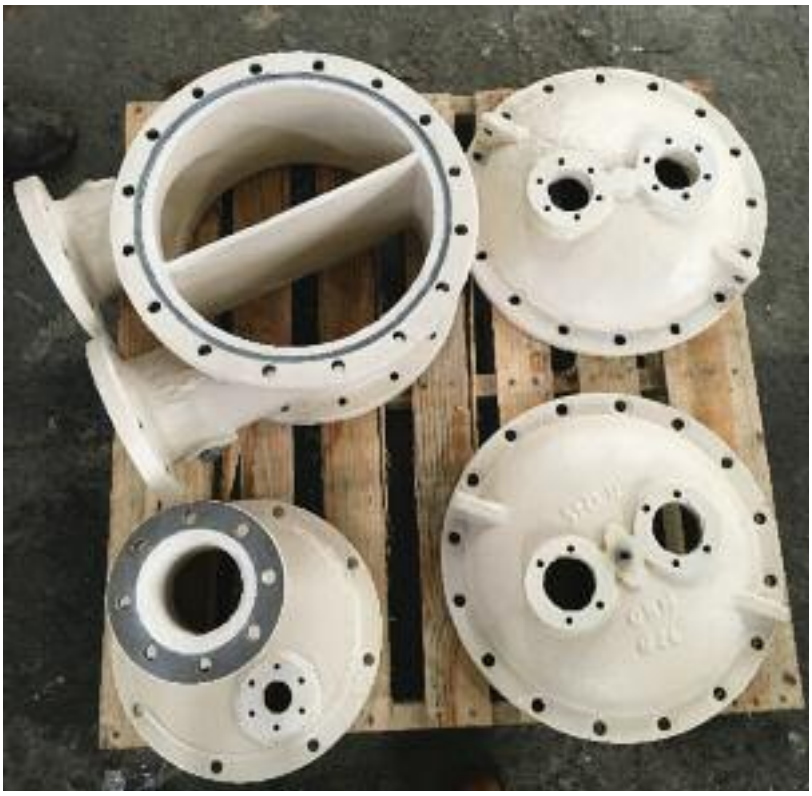
Tested in the oil & gas, power generation, water & waste and other industries for over 40 years, the Corrocoat Composite Structural Repair (CSR) System has now been qualified under BS EN ISO 24817:2015

The tensile test work required under the standard was carried out at Strathclyde Universities Advance Materials Research Laboratory. The CSR system uses a combination of Corrocoat specialist coatings interlayered with GRP composite laminates to repair, corrosion protect and give structural strength to pipework and other equipment, at a fraction of the cost and inconvenience of replacement. It is an ideal solution for capital process equipment where corrosion has reduced the wall thickness to below an acceptable minimum or where damage has occurred.

The constituents of each CSR System are specially selected to meet individual requirements but in general terms comprise: Polyglass VE/HA, applied to the abrasive blast cleaned area as a primer; Corrofill VE to fill pits on heavily corroded areas and through-wall defects and high strength multi-directional fibre composite interlayered with Polyglass VE/HA.

For more information on the CSR System or a copy of the Strathclyde University report, please contact us or your nearest Corrocoat licensed partner.

LIFE OF CONDENSER COVERS EXTENDED



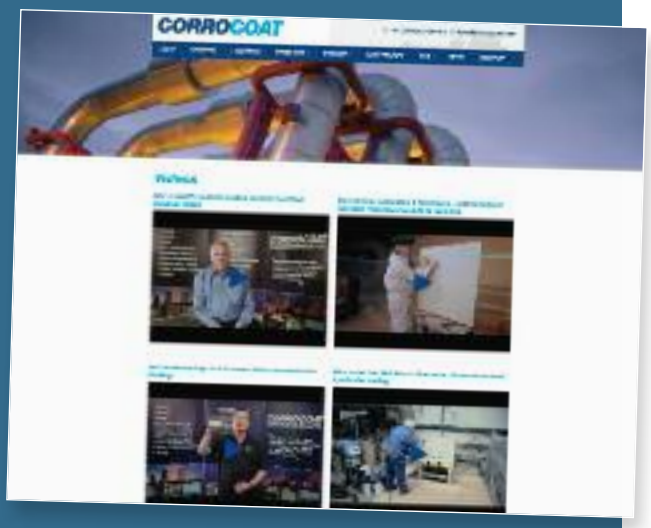
Corrocoat USA provides a wide array of corrosion solutions for the Crowley Maritime Corporation. A typical recent project was to corrosion protect three sets of severely corroded condenser heads and water boxes and their associated piping.

Since the condenser is the heart of a ship's power plant, its reliability and efficiency affect the overall system performance and it must perform well over long periods of time under difficult operating conditions. Corrosion and other deposits accumulate on inside surfaces affecting efficiency.

Historically, the company had to replace condenser heads every two years. However by preparing and applying Corroglass 600 series lining, Corrocoat USA has been able to project a service life of 10+ years.

Our Website Now Includes Technical Videos

If a picture is worth a thousand words, then a video can be worth several more and its message easier to absorb. Our website now includes access to a series of 10 technical videos containing helpful information for engineers who are interested in expanding their knowledge about anti-corrosion and coating products and processes. Typical subjects covered are: Correct Spray Application & Techniques; How to Specify a Coating and Paint Testing Methods.



Sales Director Rob Cole explains: "Video is very popular when it comes to explaining technical products and processes and more and more people are turning to internet videos for information. We have taken advantage of this trend by creating these videos which cover some of the most prominent questions our technical experts have been asked over the years."

"There has been a lot of initial interest and this series is proving popular across social media, including YouTube, Twitter and Facebook. The site will be regularly updated with new content and we welcome feedback from distributors and end-users and will endeavour to create new content based on the requirements of viewers."

To watch the videos, please visit www.corrocoat.com/videos

Plasmet ZF & ZE provide long term corrosion protection at Mumbai Port

In a competitive tender situation, Kirloskar Corrocoat was awarded and successfully completed a prestigious order for Mumbai Port Trust. The contract was for the external coating of a pipeline at the Butcher Island complex and involved surface preparation and coating application both on land and over the sea.

This is a significant project for Kirloskar Corrocoat as it confirms their ability to compete in the highly competitive, high volume marine coating market. As one of the few manufacturers of coating materials to also execute the work in this segment, the company is answering a much needed requirement from customers.

The contract involved abrasive blasting to ISO 8501-1 SA 2½ standard and then coating with epoxy glass flake filled systems Plasmet ZF and Plasmet ZE to provide long term corrosion protection. The total area coated was 19,000 m^2.

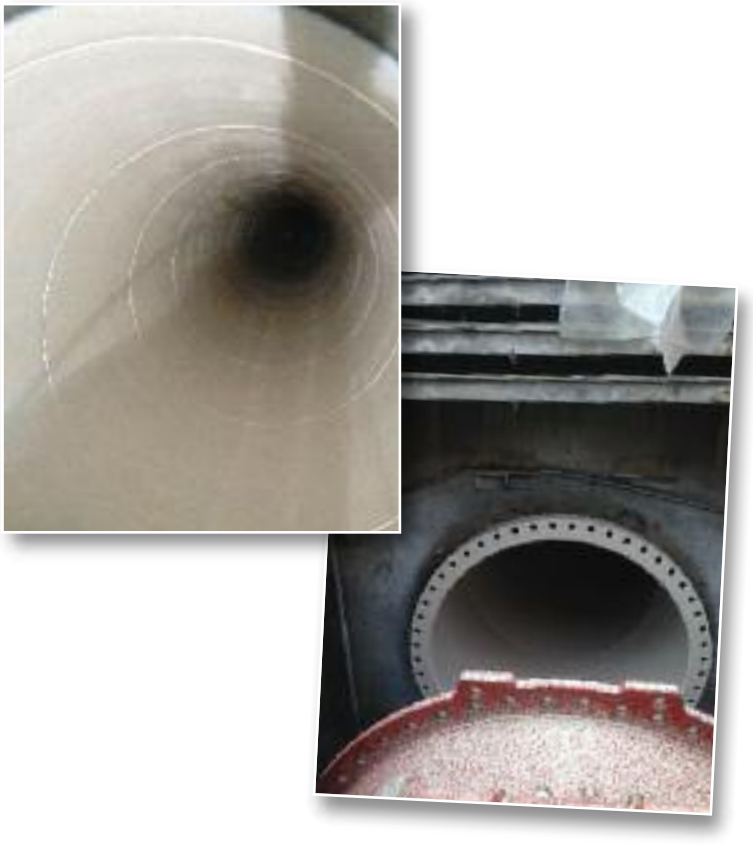
Mumbai Port is the principal gateway to India. Butcher Island is also an oil terminal with jetties for tankers and pipelines for offloading crude oil and for loading refined petroleum products. The pipelines have to cope with aggressive corrosion in this saline environment and so an advanced coating system was required to provide long-term protection against corrosion.

Re-lining Cooling Plant Header Pipes

The Shuaiba Industrial Area accommodates many of the large-scale industries in the State of Kuwait. Over 30 processing plants are located here, including petrochemical companies, oil refineries, power plants and gas companies. There is a huge demand for sea water for cooling purposes and the Kuwait Public Authority for Industry is currently investing in a power plant renovation programme to ensure that the demand for cooling water is met in the future.

The contract to re-line Shuaiba Plant B header cooling water pipes was awarded to Corrocoat Distributor and Applicator in Kuwait, the Al-Sabaiea Group thanks to its excellent track record of successfully completed coating projects for major operators in the oil, gas, and support industries.

Two 2.2m ductile header pipes each 180m long were re-lined. Following full surface preparation the following Corrocoat products were applied. Polyglass VE to fill and repair pitting, PPA primer to hold the prepared surface and finally P100 in two coats to achieve an average film thickness of 1250 µm. Armagel was used on header bends to resist against erosion and abrasion issues.

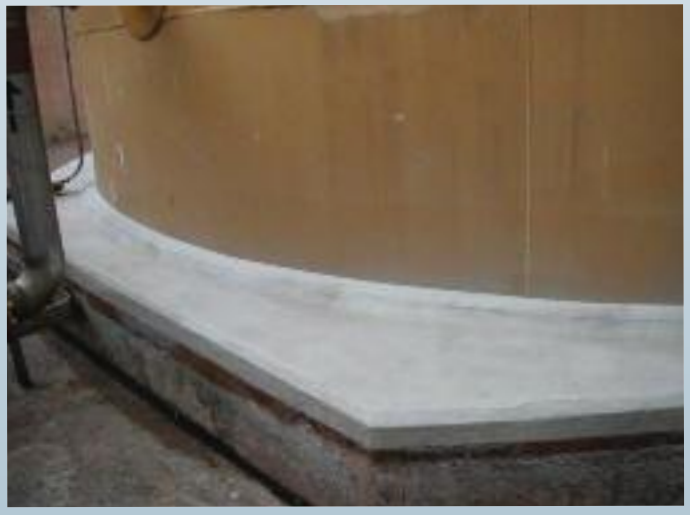


CORROCOAT PRODUCTS AND EXPERTISE DEFY HARSH CONDITIONS AT UK POWER STATION

Corrocoat products and application expertise have become synonymous with reliable long-term corrosion protection on a range of capital equipment in the power generation sector. Typical of this is a recent contract, carried out by Corroserve, to provide and apply a corrosion resistant system to protect the substrate and concrete pedestals of a number of storage tanks.

As a result of a successful repair to a similar tank, the client requested that the same system be applied to four more tanks where the metal lip/concrete wall interface have suffered from corrosion over the years. The contract involved abrasive blasting the steelwork and concrete pedestal. The steel work was primed with Polyglass PPA, pits in the steel and concrete filled with Corrofill VE before two coats of Polyglass VEF applied to achieve a DFT of 1000 µm. All angles, welds and corner stripes were coated by hand.

The concrete surfaces were also primed with WCP to a WFT of 100-150 µm, ensuring the surface is fully wetted out followd by Polyglass VE/HA and VEF at no more than 300 µm DFT. The interface between the tank lip and concrete was filled with Corrocoat Flexi-filler and glass fibre matting. This added a degree of structural strength before being over coated with Flexicoat to achieve a DFT of 1000 µm and Polyglass VE Veilcoat to all surfaces.



KIRLOSKAR CORROCOAT HELPS MUMBAI REDUCE PUMPING COSTS

MCGM is the Government body entrusted with the gigantic task of providing water to Mumbai – one of the world's most highly populated cities. The city has numerous pumping stations and Kirloskar Corrocoat (KCPL) has been working with the authority to improve pump efficiency and as a result reduce power generating costs.

One of Mumbai's pumping stations is at Bhandup and KCPL was recently awarded a contract to improve the efficiency of six of its split case pumps by coating key areas with the Corrocoat Fluglide System. The pumps were tested on KCPL's test bed for performance, both before and after coating. Results of the tests, which were witnessed by the customer, have shown that following coating, a saving of 57 kW per hour (a 7% reduction) was achieved and total savings that MCGM can expect over the next three years will be in the region Rs.6.8M ($100,000)

EXTENDING THE LIFE ON ANOTHER PIPE PROJECT

In 1993 Bill Clinton became President of the United States, Jurassic Park was first seen at the cinema and Corrocoat coated a number of pipe spools for a leading UK oil refinery.

For over 20 years, the pipe spools have been in continuous use transporting effluent at the refinery, and when they were returned recently to Corroserve for inspection the internal coating was found to be still intact. The client's future PPM schedule dictated that the pipes should be blasted and re-coated both internally and externally, along with some new sections, to ensure a lifecycle for another 20 years plus.

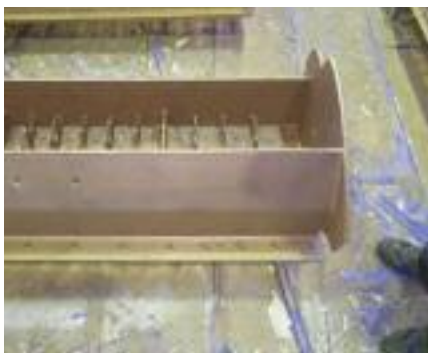
Having been blasted internally and externally to ISO 8501-1 SA 2 ½ with a profile of 50 Micron, the internals were coated with Corroglass 600 Series. Externally, Plasmet ZF to a DFT of 150 microns was applied and a final top coat of Corrothane AP1 - tinted to match the client's colour scheme.

Biofoul impresses operators of Japanese power plant

A huge requirement for cooling water means that power plants are usually located on coastal sites but the use of seawater for cooling brings associated problems – a continuous battle against marine growth on screen intakes. Marine growth not only reduces water intake size and slows the speed of flow, it also promotes rapid corrosion on the structure itself.

Corrocoat Biofoul is a non toxic anti-foul coating which provides optimum protection against biofouling and marine growth and Corrocoat Japan has successfully completed a number of contracts using this material over the years. At a nuclear power plant, a coating performance review in 2008, showed that a bucket screen coated with Biofoul four years earlier, was found to be growth free except on uncoated areas such as around fixing nuts and bolts. Just these areas were therefore coated in Biofoul at the time.

After a recent review it was decided to completely re-coat the screen. Corrocoat Japan completed the work by abrasive blasting the screen then spray applying Polyglass ZipCoat, and a top coat of Biofoul to a total dft of 0.9 mm. Everyone involved is now anticipating that the next review in four years' time will show the same optimum protection.



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.

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