CORROCOAT NEWS

February 2019

NEW HIGH PERFORMANCE AEROSOL-DELIVERED COATING TO COMBAT CORROSION

We are pleased to announce the launch of an aerosol-delivered, high performance surface tolerant coating system.

Supplied in convenient, easy-to-use, single pack 400ml aerosols, application is as simple as breaking the internal seal, shaking the contents and you're ready to go. There is no need for scales, mixing containers, mixers, cleaning solvents, brushes or spray equipment.

"Mix and go" – it's that easy...

Based on our proven Plasmet ZF materials, this new aerosol application technology contains a high performance glassflake and MIO filled two-pack epoxy, with both passivating and rust conversion properties.

With a useable life of many hours and free, easy to change additional nozzles with each kit, the Plasmet ZF aerosol offers a tough durable coating ideally suited for small areas of coating damage, rust spotting, small areas of corrosion damage, repairs where a coating has been removed for inspection and many more.

Plasmet ZF aerosol – substrate protection and coating maintenance and repairs… made easy.

In this issue

STAINLESS TANKS AND PIPE SPOOLS GET CORROGLASS AR4 TREATMENT

Corroserve was asked by UBH International, a world-leading manufacturer of tanks and containers, to recommend a coating system for the internal corrosion protection of 10 newly fabricated stainless steel tanks and 20 pipe spool sections. The equipment would be operating in aggressive conditions - carrying Sodium Hypochlorite at 15% maximum concentration at temperature ranges between – 20°C and 50°C.

Sodium Hypochlorite is used for water purification in processes such as, bleaching, odour removal and water disinfection. As such, the coating recommended had to offer outstanding resistance to chemicals at specific temperatures.

Corroserve engineers recommended Corroglass AR4, a coating specifically formulated to offer excellent protection in aggressive chemical environments. In particular AR4 offers exceptional resistance to base environments such as Sodium Hydroxide and Sodium Hypochlorite, the resin and cure system having been modified to give optimum resistance to these environments.

Works Completed

- Machined surfaces were masked and protected prior to abrasive blast cleaning in accordance with ISO 8501-1 Sa 2 ½ to achieve a surface profile of 50µm.

- After a final blow down the vessels were vacuumed to remove all dust and debris.
- A first coat of AR4 was applied by airless spray to an average wet film thickness of 600-800µm followed by a second coat to achieve the specified minimum DFT of 1250µm.
- The coating was thickness tested and spark tested to ensure it was free from holidays and pin holes and then left to post-cure at 60–80°C for 8 hours to provide the best chemical resistance.

The work was carried in batches with each batch taking between 2–3 weeks to complete. UBH International were extremely pleased with the quality of the work and the vessels are now in service.

Al Sabaiea National Contracting and General Trading Company, our Kuwaiti partner, has an excellent reputation for providing a quality service as these examples show.

AL SABAIEA TO THE RESCUE

Al Sabaiea engineers were called to an emergency at the Kharafi National Power Station. A fibreglass pipe had suffered a major leak where the collar meets the flange section and required immediate repair in order to keep the power station running. After stemming the flow, hand and power tools were employed to remove a previous repair and prepare the pipe for remedial work.

L600 was used to wet out fibreglass strips to repair and reinforce the area where the leak had occurred. Once cured, Polyglass 100 was applied to internal and external surfaces to further reinforce the composite structural repair.

The job was completed in just one day and the facility was back up and running less than 24 hours after the leak first occurred. The customer was extremely pleased with the work and was particularly delighted that it had been completed with such skill and speed.

REFURBISHMENT OF POTABLE WATER TANKER

Al Sabaiea successfully quoted for a contract for the Drilling and Oil Well Maintenance Company to refurbish and corrosion protect the internal surface of a 10,000 litre potable water tanker.

The internal surface of the tank was abrasive blast cleaned to Sa2½ to provide a surface profile of 50µm before Corrofill was applied to areas where pitting was revealed and then Polyglass 100 was applied by airless spray.
The contract was completed by a four-man team in just six days and the tanker delivered back to the customer who provided excellent feedback on a job well done, to budget and on time.

CORROCOAT SOUTH AFRICA SCALES NEW HEIGHTS

When Corrocoat SA was approached by Eskom Medupi Power Station – one of the world's largest coal fired power plants - to provide corrosion protection for six stainless steel flue cans, they realised that this would be a major challenge. The cans were located at the top of Eskom's chimney stacks, so all the work would have to be carried out 220m above ground.

Their solution in this oxygen depleted environment where temperatures could reach 120°C.,was based on the use of Corrothane XT, which offers outstanding chemical resistance coupled with continuous protection at high operating temperatures. For the cooler external surfaces POLYGLASS VE was recommended

Corrocoat was subsequently appointed as the nominated contractor for the project which was to be completed in two phases. Eskom instituted a General Outage for three weeks when the stacks were completely shut down, offering these periods to complete the removal of the borosilicate bricks, apply Corrothane XT to the internals of the flue cans, and the re-installation of new bricks over the top of the applied Corrothane XT.

The Project In Numbers

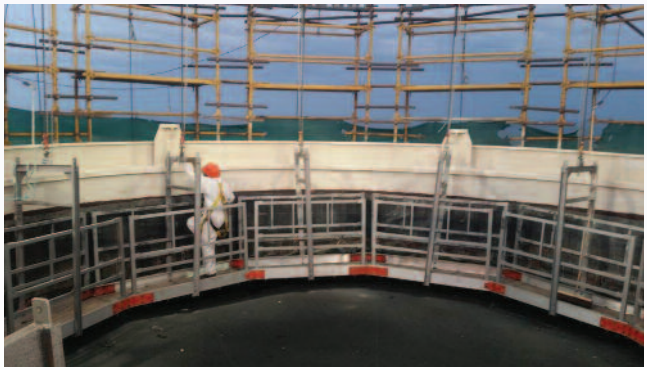
- 6 x 9m diameter flue cans to be protected with a total surface area of 2,640m^2.
- 800 litres of Corrothane XT and XTHA plus 3000 litres of Polyglass VE and VEHA used to complete the work.
- 130 tonnes of abrasive blast media used – all of which had to be carried up to the top of the stacks, along with 3 x blast cleaning machines, air receivers and attendant air and blast hose, nozzles, PPE etc.
- All equipment and materials were winched to the top of the stacks and conveyed using either a ratchet-type 'Torga' elevator which took a minimum of 20 minutes to reach the top – or one hour each way by foot!
- 700 linear metres of sharp edges to grind and radius on the stainless steel substrate.
- 1300 linear metres of stripe coating hand applied.

Working 200m above the ground required careful forward planning including providing a constant supply of drinking water for the crew, ablution facilities, and the availability when needed of all materials, small tools and other equipment at the work face.

Overall the project presented a number of challenges to the Corrrocoat SA team, not least the extreme height and simply getting to the cans at the start of each shift. The need to transport materials for blasting and coating to the top was an enterprise in itself and put real physical stress on personnel who had to work with restricted access, in specialist safety equipment and to the tightest health and safety requirements.

During the shutdown periods, Corrocoat SA successfully completed the application of the Corrothane XT lining internally to all six cans, as well as over the top of the flue cans and down the initial two metres externally.

A successfully completed major project at one of the world's largest coal fired power plants, requiring a team of 35 to apply 4000 litres of specialist coatings, to strict time constraints and at a height of 220m…. that's a contract that shows the expertise and resourcefulness of the Corrocoat SA team and one they can be justifiably proud of.



On Site Pipe Coating in South India

Kirloskar Corrocoat Private Ltd (KCPL) has been operating in India since 1993 using Corrocoat coating systems to protect all manner of infrastructure and assets in many industry sectors.

KCPL, was asked to protect 1.3m and 1.5m diameter cold water inlet and outlet pipes for the Tangedco Ennore Power Project in South India. Polyglass 100, a coating developed specifically for immersed marine conditions, was specified to provide protection against the seawater the pipes would be carrying when installed. The work was to be completed at several of the pipe manufacturer's facilities right across India so the project proved to be a test of KCPL's organising and scheduling skills.

The internal surfaces of the pipes were abrasive blast cleaned to Sa2½ before Polyglass 100 was applied in multiple coats to achieve a DFT of 1000µm. The pipes were then welded together and erected on site in their final positions where KCPL coated the joints - again with Polyglass 100.

The project was completed over a period of six months involving a team of 20 personnel. In total a surface area of some 51,100 m^2 was corrosion protected– quite an achievement.

UP AGAINST THE WEATHER

Corrocoat Caspian in Kazakhstan was asked to line the internal surfaces of three fuel tanks at the Pavlodar Oil Refinery. The tanks are an integral part of the refinery and required a coating system approved for use with petroleum products in immersed conditions.

In order to win the tender Corrocoat Caspian had to satisfy the customer that the coating to be used (Zip E) was suitable for use with aviation fuels and relevant test results were submitted from the Russian State Civil Aviation Institute (GOS NII GA) laboratory for TC1 fuel as well as from the Intertek Laboratory regarding Jet A fuel to attest to the coatings suitability.

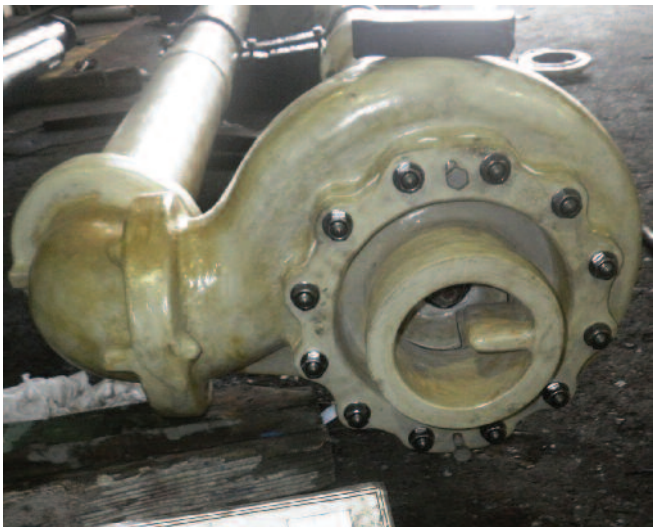
Zip E provides cost effective, durable protection in aggressive atmospheric conditions and Immersed environments and was the perfect choice of coating system to complete the job.

Summer in Pavlodar can be very short; cold weather in September can be expected. With this time constraint the work had to be carried out when ambient temperatures would be suitable for application and curing. In total a surface area of 14,130m^2 was coated to a dry film thickness of 500-700µm.

As a further test of the integrity of the coating, 21 days after the tanks has been re-filled with fuel, samples had to be resent to the Russian State Civil Aviation Institute to attest that the coating had not tainted the fuel and affected its quality.

The results were positive and Zip E was shown to have no effect on the stored aviation fuel. The project was completed in good time before the onset of cold weather and to the satisfaction of the customer.

HAVE WE MET BEFORE?



Corrocoat Japan was asked to service a raw water pump that they last serviced in 2011. At that time the vertical wet-pit volute pump had been in operation since 1993 without any servicing and as a result all the internal components were found to have deteriorated. A full refurbishment was carried out and the pump returned to service.

The client, a major steel plant, had been very satisfied with the results and so seven years later, as part of a maintenance program, they called in Corrocoat to inspect and service the pump again. It operates in a very aggressive environment – the raw water it carries can be very abrasive. Processes such as cold and hot-rolling, casting and scrap steel storage produce waste oil, grease and debris can cause considerable pump erosion and corrosion.

When examined, the pump was found to have deformed impeller blades and in general all the internal components were suffering abrasion and corrosion damage so a full refurbishment was required.

The pump was transported to Corrocoat Japan's workshop where it was stripped and abrasive blast cleaned. The impeller was repaired with wetted out glass fibre cloth and coated with Corroglass 600 Series which was also used on the internals of the casing as required. Both impeller and casing were then coated with Polyglass VEHA which provides excellent resistance to solvents and acids at elevated temperatures and provides excellent undercutting resistance and sliding abrasion resistance.

The pump was re-assembled and returned to the plant where it is expected to give another seven years of trouble-free service.

Corrocoat USA design durable jet nozzles for a hydro-excavator

Leading supplier of cement, ready mix concrete, mortars, screeds and aggregates, Cemex approached Corrocoat USA to design a more durable nozzle than the urethane version presently used to pump silty water.

The current nozzles show wear after just two weeks and ultimately fail in as little as four months. The time required to replace a nozzle and excessive fuel consumption meant that Cemex had a strong financial incentive to find a superior solution.

Corrocoat USA made a cast of a new urethane nozzle from wax, which was then duplicated in aluminum as a mold. The nozzles were constructed from 4" pipe flanges and schedule 40 piping. The form was then mounted to a board and both coated in a release agent prior to bolting the flange to the board for application.

Plasmet HTE was applied to the internals in eight applications to keep the temperature below 150°F during curing. After further machining the outside of the nozzle was coated with two layers of Plasmet ZF and delivered to the client at a price comparable to previous urethane units.

The new nozzles have been in use for nine months and have maintained an excellent spray pattern. The next replacement nozzles are expected to have an even longer service life due to the welded steel cap providing mechanical reinforcement.

Loading Bay Protected from Chemical Attack

Corroserve was invited by a UK power station to inspect a loading bay floor that was experiencing attack due to its aggressive chemical environment. The concrete surface had been badly damaged and required repair and protection from further attack – a level of protection not achievable with standard concrete materials. A Corroserve NACE inspector recommended a complete refurbishment programme involving the application of specialist materials and Corrocoat coatings.

The recommendation was accepted and Corroserve's site services team first removed all existing coatings with a scarifier leaving a surface ready for re-coating. Loose material, surface laitance and weak frangible material were cleaned away and the area vacuum cleaned to ensure a dust-free surface.

The concrete surface was sealed using WCP to ensure no moisture could penetrate the new coating system from below and Corrofill VE was used to fill holes and cracks to ensure an even surface for the final coating. The full floor area was then laminated using multi-axial glass fabric thoroughly wetted with L600 laminate resin to provide structural strength. The glass fabric was rollered into place to ensure full adhesion and to remove any trapped air. Two coats of Polyglass VEF were then applied by airless spray to achieve a total WFT of 1250µm, quartz aggregate was incorporated into the second coat to give an anti-slip finish.

Following minimum disruption, the loading bay was quickly back in service, fully refurbished and chemically protected.

PROTECTION OF SUPER DUPLEX PROPELLER SHAFTS

Alhuda Corrosion Treatment in Qatar was asked by Nakilat Svitzer Wijsmuller (NSW) to recommend a long-term corrosion protection system for two new 1.5m long propeller shafts. The shafts would be working in a harsh marine environment, so were made from super duplex stainless steel, but NSW wanted even better protection from the start.

Alhuda recommended protecting and reinforcing the propeller shafts with multiaxial fibre glass cloth wetted out with L200 lamination resin, followed by coating with Corroglass 200 – all work to be completed on-site at the NSW workshop in N-Kom shipyard.

6mm was machined off the diameter of the shafts before they were abrasive blast cleaned to provide a surface profile of 50µm. After laminating, coats of Corroglass 202, 232 and finally 252 top coat were applied. To complete the project the shafts were post machined to the required diameter of 105mm and tested.

The work was successfully completed and the fully protected shafts were returned, ready for installation and service in an aggressive environment.

REFURBISHMENT OF ABSORBER CIRCULATION PUMPS AND IMPELLERS

Our partner, Vietnam Glocoating Engineering (VGCE), has recently completed the refurbishment of a number of absorber circulation pumps and impellers for the Vedan Vietnam Enterprise Corp., a large manufacturer of organic fertilizer and feed additives.

After conducting an on-site assessment survey and talking all necessary measurements, the pumps and impellers were transported to the VGCE workshop, where they were dismantled and cleaned to remove any contaminants.

The flanges were rebated to protect against crevice corrosion and the flanges and shafts protected before being abrasive blast cleaned. Corrofill E was used to build up the vanes of the impellers after which laminating resin and multi directional glass fibre matting was used to add improved strength to the blades. Plasmet HTE was applied at 3000µm dft, before a final coat of Plasmet EP1 completed the refurbishment work.

Plasmet WR was used to bring the back plate & suction housing back to original size and shape and Plasmet HTE provided protection from chemical attack and abrasion. The same material was also used to provide a protective coating on the internals of the casing.

The pumps were rebuilt and dynamic balancing tests of the impeller completed before the pumps were returned to service.

LONG TERM CORROSION PROTECTION OF RAILWAY TANK

Our Belarus operation – Corrocoat AKZ – was asked to offer a solution for the long term corrosion protection on the internals of a 36% HCL railway transportation tank that was suffering severe corrosion damage.

The customer initially used a rubber lining system, but this was proving to have a very short life span. After just six months it was degrading and showing signs of breaking down – the customer expected a rubber lined tank to last just one year before re-coating. With such a frequent re-coating schedule and associated costs a long-term solution that would significantly reduce down time was required.

On inspection, the internals were found to be suffering from severe pitting corrosion, so Corrocoat AKZ carried out a programme of work as follows:

- A thorough clean with an alkaline wash followed by abrasive blast cleaning to a surface profile of 50µm. All corrosion pits filled with Corroglass 602 and laminating cloth applied to welds and junctions to add further protection.
- Two coats of Polyglass VEF at total dft of 1200µm. This the ideal choice as the coating offers superior corrosion and chemical resistance in immersed environments.
- A final top coat of Polyglass VE Veilcoat at 300µm for a high-gloss protective finish.

As the job was carried out in winter when the ambient temperature was below zero, Corrocoat AKZ had to install a tarpaulin shelter over the truck and keep the temperature at 15°C above zero minimum – no small task in itself.

One year on, the tank internals are still in an excellent condition. Feedback has been very positive and Corrocoat AKZ now expect orders to repair and re-coat more 36% HCL railway tanks.

KCPL EXHIBIT AT NACE CORROCON

KCPL personnel pictured are Dinesh Arve (second right) & Ravi Bhat (third right).

Kirloskar Corrocoat PVT Ltd (KCPL) were exhibitors at the NACE COROCON 2018 Exhibition and Conference held in Jaipur, India between 30th September and 3rd October this year.

Corocon is the second largest conference and expo in the world dedicated to the science of corrosion, its prevention and treatment. Held annually in India, it attracts more than 800 industry leaders from around the globe and gives them the opportunity to catch up on new developments and forge new friendships with like-minded specialists.

KCPL's exhibit focused on its 30 year experience in India and on the company's expertise in refurbishing and improving efficiency in all types of pump. The picture shows the KCPL team being presented with a token of appreciation from NACE India Gateway Section in recognition of their support.

NEW APPOINTMENTS

Corroserve has made three key sales management appointments:

Scott Downie is the new Sales Manager (Scotland). He has been involved in sales and business development throughout his career in the oil & gas, decommissioning, renewables, fuel storage and industrial gas marketplaces. In his role, Scott will continue supporting our client base in the Scottish region and developing new opportunities.

With wide experience working for several major paint companies, new Sales Manager (East) **John Virando** has an impressive record in maintaining and developing clients in many industrial sectors, including manufacturing, marine, oil & gas and automotive.

Completing the appointments is **Nicola Kirkby** who Joins Corroserve as Sales Manager (West). For the past five years Nicola has worked as a sales engineer in the bulk materials handling industry and before that has held sales development roles in the recycling sector, gaining experience with final stage recycling companies as well as with manufacturers of recycling processing machinery.

Sales & Business Development Director, Rob Cole said: "These are great appointments for us. Scott, John and Nicola bring a huge amount of experience and I am sure they will do a great job further developing our business."

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:–

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