



CORROCOAT NEWS

August 2020

Plasmet ZF – A Runaway Success in Norsok Tests

Late last year Corrocoat submitted Plasmet ZF for independent testing to Norsok Standard M-501 by world leading inspection and testing organisation SGS. Norsok standards were developed by the Norwegian petroleum industry and describe in detail how to achieve the safest and most cost-effective products in design, engineering, manufacturing and maintenance of structures in the oil & gas industry.



To pass the Norsok Standard M-501 test protocol a coating system must demonstrate high levels of protection with a minimum need for future maintenance and health, safety and environmental impact.

Plasmet ZF was tested against System 1 – use on carbon steel with a max operating temperature of <120°C. – structural steel, equipment exteriors, vessels, pipework and valves including in tidal and splash zones and System 3B – internal surfaces of carbon steel vessels – ballast water tanks/internal seawater filled compartments.

After six-month long exposure tests for cyclic ageing, seawater immersion and cathodic disbondment, the results were received this June and the coating performed extremely well, passing all tests with flying colours.

As testament to the success of Plasmet ZF, SGS commented that the results on the cathodic disbondment tests were “exceptional” reporting that they could not even get a knife blade between the coating and the steel after 175 days on test!

So, great results for an outstanding coating that has now passed all the relevant Norsok tests and is now the ideal choice for corrosion protection in the offshore and marine industries.

Continued overleaf....



In this issue

Page 2

A Runaway Success in Norsok Tests



Long Term Corrosion Protection of a Saturator

Page 3

We Can Rebuild It



Page 4

Internal Lining for a New Gas Absorber Tank



Economic Solutions

Page 5

Ship Ahoy!



Corrosion / Abrasion Protection of Expander Components

Page 6

Zippering Ahead of Schedule



Powering Up in Indonesia

Page 7

Sea Water Pump Given New Lease of Life



Solving Splash Zone Corrosion Protection

Page 8

Latest News



PLASMET ZF – A RUNAWAY SUCCESS IN NORSOK TESTS

Test Parameter	Panel N°	Blistering		Rusting		Cracking		Flaking		Chalking	
		ISO 4628-2		ISO 4628-3		ISO 4628-4		ISO 4628-5		ISO 4628-6	
		Density (Size)		Ri		Density (Size)		Density (Size)		Rating	
		Req.	Res.	Req.	Res.	Req.	Req.	Req.	Res.	Req.	Res.
Cyclic Ageing (ISO 20340)	238903-01		0(S0)		Ri0		0(S0)		0(S0)		0
	238903-02	0(S0)	0(S0)	Ri0	Ri0	0(S0)	0(S0)	0(S0)	0(S0)	Max 2	0
	238903-03		0(S0)		Ri0		0(S0)		0(S0)		0
Seawater Immersion (ISO 2812-2)	238903-04		0(S0)		Ri0		0(S0)		0(S0)		-
	238903-05	0(S0)	0(S0)	Ri0	Ri0	0(S0)	0(S0)	0(S0)	0(S0)	-	-
	238903-06		0(S0)		Ri0		0(S0)		0(S0)		-
Cathodic Disbondment (ISO 15711)	238903-07		0(S0)		-		-		-		-
	238903-08	0(S0)	0(S0)	-	-	-	-	-	-	-	-
	238903-09		0(S0)		-		-		-		-

This chart displays the results achieved by Plasmet ZF after cathodic disbondment, seawater immersion and cyclic ageing tests. Visual inspection of the coated sample plates showed no blistering, rusting, cracking and flaking and no chalking – you really can't get better results than that!

“Plasmet ZF and many other Corrocoat systems have for years been used in demanding energy applications throughout the world,” says Sales Director – Rob Cole. “The NORSOK test results give us unbiased confirmation of its performance and our customers an added level of confidence that it will meet their toughest requirements.”



LONG TERM CORROSION PROTECTION OF A SATURATOR

Our Belarusian operation (Corrocoat AKZ) was contracted to refurbish and corrosion protect a water treatment saturator at a major Belarusian power station. The saturator was suffering from corrosion as the operating medium was water with an acidic pH. The client required a coating with excellent corrosion resistance, capable of providing protection for at least 10 years. The work had to be completed during a planned 20-day shutdown.

After the saturator's internals were blast cleaned to ISO 8501-1 Sa 2½, Polyglass VEHA was applied as a stripe coating at the weld areas, edges and joints. This was followed by Polyglass VE spray applied at a minimum DFT of 1000µm. Finally, a top coat of Fluigluid VE was applied at a minimum of 300µm. The total area coated was 980 m², the work being carried out by three teams working in three shifts.

Corrocoat AKZ was the only company able to complete the contract within the time frame specified and they again showed how flexible and proactive they can be when faced with tight client schedules.



WE CAN REBUILD IT

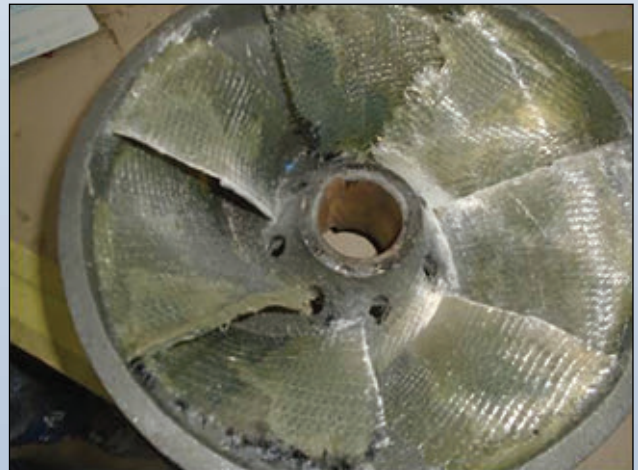


As part of an ongoing service programme for a UK power station, Corroserve received a clarified water pump for overhaul. Once out of service it was noted that the impeller was suffering from severe cavitation within the suction eye area, with considerable loss of material right across the vanes. Due to the amount of damage, the impeller was deemed to be “beyond economic repair” by the client.

After investigation by Corroserve's pump manager, it was discovered that the original manufacturer no longer produced this type of pump. This left only two options – to reverse engineer the impeller or repair it. As reverse engineering would involve a new pattern for casting, it would be an extremely long and expensive option. Corroserve therefore proposed to repair the impeller as part of the pump overhaul.

After stripping the pump down, the impeller was measured and pre-machined, a template being made from the best surviving vane. All wetted areas were abrasive blast cleaned to ISO 8501-1 Sa 2½ with a blast profile of 50µm. The coated areas were primed using Corroglass 632 and the vane profile built up using 600 laminating resin and multi-directional glass matting. The impeller was then brought back to original thickness using Corroglass 600 series coating. A top coat of Corroglass 652, blue drill guard, was applied for protection.

The impeller was finally post machined back to original sizes, including re-instating the correct wear ring running clearances in accordance with international pump standards and check balanced to ISO Grade G6.3 in accordance to BS6861 Part 1/ ISO standard 1940-1. The client was very satisfied with the quality of the work which was completed at a fraction of the cost of replacement.



CORROSERVE
Experts in Pump Repair and Refurbishment

INTERNAL LINING FOR A NEW GAS ABSORBER TANK



A major chemical processing plant in Japan was looking for a coating system to add further reinforcement to the fibre reinforced plastic lining that was to be applied to a new stainless steel exhaust gas absorption tank. Corrocoat Japan recommended Polyglass VEF due to its superior resistance to chemical attack across the pH range in immersed conditions.



The client requested that a series of pull-off tests be completed to confirm that the adhesion between the two different layers would meet their exacting specifications. Polyglass VEF returned excellent results, demonstrating high levels of adhesion, resistance and compatibility between layers and Corrocoat Japan was awarded the contract.

After suitable preparation Polyglass VEF was spray applied to achieve a DFT of min 500µm. Polyglass VEHA was applied by hand where spraying was not practicable. Spark testing to identify pinholes or holidays was carried out but none were present.

Feedback from the client has been very positive and the tanks are now protected and installed at the chemical plant.



Economic Solutions

This process vessel experienced a brick and mortar lining failure resulting in the process environment consuming the carbon steel shell 90ft above ground. A full repair would have required over a week of unscheduled downtime, so a quotation request was sent out to contractors for an external patch that would not further degrade the internal liner.

All proposed options, other than that from Corrocoat USA called for welding, risking further damage of the liner. Corrocoat's proposal – to apply a composite patch to withstand the corrosive 80°C environment – required less time and eliminated the risks of welding while requiring less than half the investment. The proposal was accepted.



The area was scraped carefully by hand, exposing a five foot vertical void in the shell surrounded by smaller voids. The thinner areas near the voids were prepared with power tools to protect the integrity of the liner, the surfaces washed to remove salts prior to abrasive blasting and priming with Corroglass 600 Series.

Corroglass 600 Series is specifically developed for process internals, resisting chemical laden environments. It includes a lamination resin and barrier linings of three different viscosities that can hang at up to 3mm without sagging and be applied wet-on-wet in films of up to 8mm eliminating the long wait times between layers with other composite repair systems.

The work was successfully concluded without the need for potentially damaging hot work in a very exacting time period.



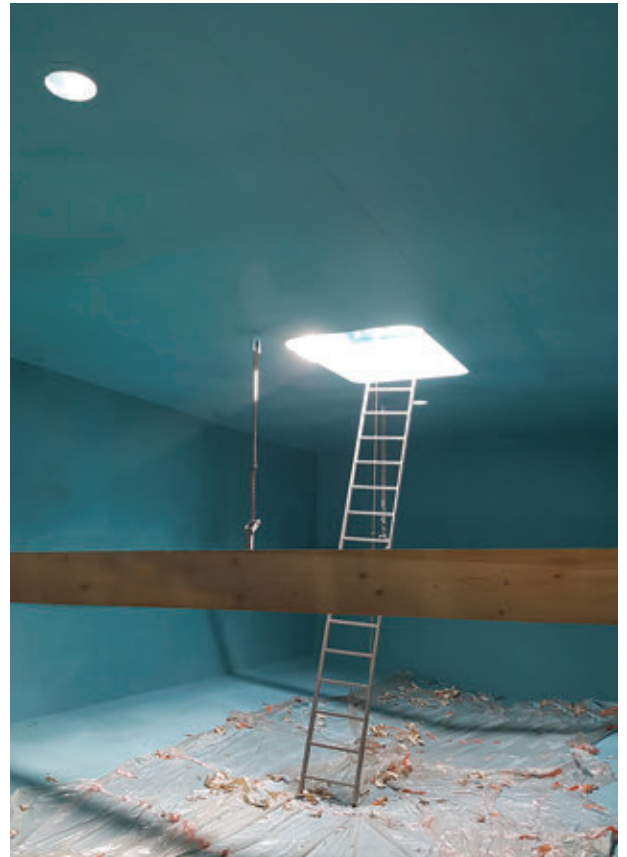
SHIP AHOY!

In 2019 Corrocoat Benelux was commissioned to apply a protective coating to five storage vessels on a newly constructed inland cargo vessel. The work was secured as Corrocoat Benelux had completed similar work for the same client in the past and have a proven track record. Polyglass VEF had proved to be more resistant to the medium being carried – phosphoric acid 54% and silicofluorohydroic acid – than the original material.

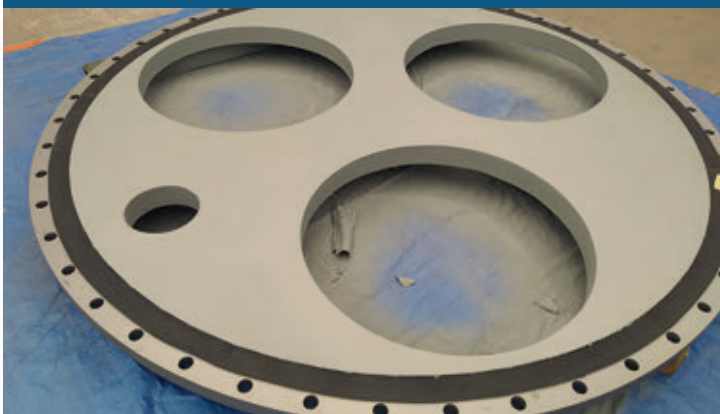
Due to construction delays the start date was pushed back by six months. Nonetheless Corrocoat Benelux remained flexible and through good planning was able to organise its workforce in line with the client's requirements.

Corrocoat's team worked together with Muehlhan who completed the gritblasting work employing their own ship which came alongside the vessel to be worked on. Polyglass VEF was specified at a thickness of 1000µm over the entire 2800m² coated area and tests showed that Corrocoat Benelux's experienced sprayers achieved this without over-applying. They did an amazing job, staying within anticipated material usage.

The project was successfully completed and the storage vessels can expect an extended service life carrying industrial chemicals along the inland waterways of Holland and the low countries.



Corrosion / Abrasion Protection of Expander Components



In May 2020 our Czech partner – Corrotech, was approached by a customer in the power generation industry to apply an abrasion resistant lining to the internal surfaces of newly fabricated expander components, a total surface area of approx. 20m².

Corrotech recommended the use of Corrocoat Polyglass VEF WR. This coating which is filled with glassflakes and anti-abrasive fillers is the ideal choice for this type of work as it would offer high levels of corrosion and abrasion protection of the expander components.

The following works were completed. Oil and grease was removed from the expander components before they were blast cleaned to ISO 8501-1 Sa 2½. Two coats of Polyglass VEF WR were then applied to reach the specified DFT of 1500µm necessary to provide the required levels of abrasion and corrosion resistance. Finally, quality assurance procedures were completed as per an agreed Inspection and Test Plan.

Polyglass VEF WR will protect the steel substrate and offer good resistance to abrasion for many years extending the service life of these components.

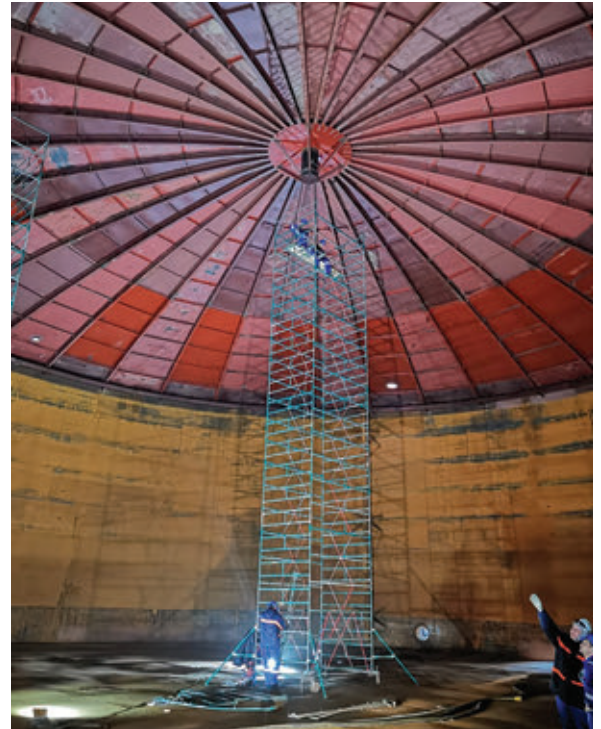


Zippering Along Ahead of Schedule

In late 2019 Corrocoat Caspian was asked by Tengizchevroil – a Chevron subsidiary, to internally line four 10,000m³ tanks used to hold river water required in the production process. Tengizchevroil operates the huge Tengiz oilfield in western Kazakhstan.

Strict time constraints meant the work had to be completed quickly and in order to achieve this Corrocoat Caspian used two teams of 14 people working on both day and night shifts. In total an area of approximately 16,000m² was coated with Corrocoat ZIP E. This material had been specified because of its excellent application characteristics and good coverage in a single coat. The work was completed one month ahead of schedule.

This was the first contract awarded to Corrocoat Caspian by Chevron. Tengizchevroil was impressed with the quality of the work and of course the early completion date. Following such a positive experience Corrocoat Caspian is hoping to receive more orders from this client and build a close working relationship.



Powering Up in Indonesia



Over the past two years Corrocoat Indonesia has been working at two coal fired power stations located in Pacitan City in East Java for PT. PJB UBJOM. Both 315mw power stations required work on the inlet/outlet tube sheet condensers which were suffering from leaks on the welded joints of the titanium tubes. This damage was affecting the efficiency of the heat transfer and allowing steam to escape.

Corrocoat Indonesia recommended coating the affected tubes – a total surface area of 120m² – with Plasmet HTE at 1000-1500µm DFT. HTE contains stainless steel flakes,

glass flakes and silicon carbide making it the ideal choice for areas requiring abrasion resistance.

The projects were completed over a period of 30 days, during which other jobs were completed including lining a vertical lift circulating water pump and an oil tank. The successful completion of the works created a great deal of awareness in the industry especially with other coal fired power station operators. This raised profile resulted in Corrocoat Indonesia being contracted to complete a similar job at Adipala coal fired power station on Java and it is anticipated that another contract at the Suralaya power station – due to be commissioned during 2020 – will be forthcoming.



SEA WATER PUMP GIVEN NEW LEASE OF LIFE



Al Huda Corrosion Treatment, our partner in Qatar, took delivery of a severely damaged sea water pump in need of complete refurbishment and a protective lining. Al

Huda's client – MILAHA, a specialist pump company described the pump as having severe corrosion and erosion damage and metal loss, all of which needed to be addressed.

Abrasive blast cleaning revealed the true extent of the damage and Al Huda's technicians used Corrofill E and Plasmert HTE at a DFT of 1200µm to repair and line the pump internals. The external required a combination of weld repairs, composite lamination to add strength and Corrofill E before a final top coat of Plasmert ZF was applied to offer all round protection.

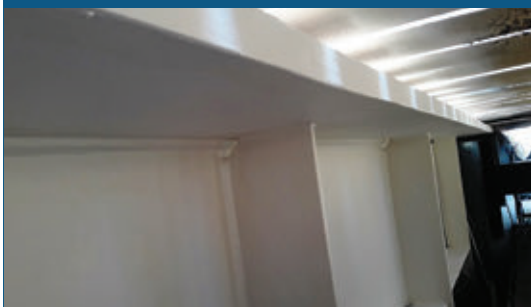
The shaft was cleaned and reinstalled in the pump along with a new impeller and new mechanical seals, before a pressure test to 1.5 times its service operating pressure to ensure the quality of the work completed.

The client was extremely pleased with the quality of workmanship as well as with the significant cost saving achieved when compared to purchasing a new pump.



Solving Splash Zone Corrosion Protection

India's largest EPC conglomerate has constructed massive ship lift facility in Southern India capable of lifting a ship of 200m length and width up to 43m. Essentially the ship lift is an enormous elevator used to raise ships out of the water to enable dry-dock onshore maintenance work to be completed. The continuous lifting and lowering means the ship lift platforms are continuously in the splash zone and at risk of corrosion due to continued wetting with salt water and exposure to oxygen rich air.



Originally coated in shop in 2011 by another company, after six years' service it was evident that recoating work was required. The job would require a host of technical and site management skills and KCPL Corrocoat was successful in securing the contract.

After some test procedures had been carried out it was decided that vapour blasting was the best solution to adequately prepare the lift surfaces for coating. Polyglass Zipcoat was then applied to achieve a DFT of 1000µm. Zipcoat provides durable corrosion protection in aggressive atmospheric conditions and immersion environments. In all, some 1500m² was blasted and coated and the project was completed on time in March 2020.

The feedback from the client has been extremely positive and the coating is performing as required in this testing splash zone environment, so much so that the client renewed the annual rate contract for 2020-21.



LATEST NEWS

Our Chinese partners Fo Shan Lai Bang Science & Technical Co. Ltd located in the Guangdong province of China has won a large contract to line and protect the pipes and components of a large firefighting system.



Part of the consignment ready for loading

So far two full 40ft container loads of Polyglass material have been dispatched from Corrocoat's Leeds production facility to Guangdong as the project gets underway. It is hoped that the successful completion of the project will lead to more work being awarded in the future.

SEND US YOUR SUCCESS STORIES AND PICTURES

....We want to hear from YOU



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:-

CORROCOAT

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