

Corrosion solved for Rimex electrolytic colouring plant

As world leaders in the design, manufacture, installation and management of surface treatment process plant, NHE was approached by Rimex for the refurbishment of its colouring process plant.

NHE's solution to the corrosion issues Rimex experienced was to supply a custom made, easy to install, cost effective lining system from Witt Lining Systems that offered enhanced protection compared with the current pit lining system.

The Challenge

Rimex carry out electrolytic colouring of stainless steel sheets used primarily in architectural applications. The colouring process uses corrosive chemicals (chromic acid) which will attack concrete and acid resistant floor finishes. The plant is located in a pit which provides secondary containment of any chemical spills as requested by the Environmental Protection Act. Located in an industrial area in close proximity to residential properties, the organisation is monitored by the Environment Agency.

Rimex needed to refurbish its colouring plant after a number years of service resulted in erosion and damage of the existing concrete and chemical resistant screed from contact with the process chemical. Rimex was aware that its current coating was resistant to the chemicals used but was not corrosion proof. Unless the chemical is neutralised after a spillage the material will oxidise and attack the chemical resistant screeds. Due to the nature of the work carried out by Rimex there was a need for a coating process that was not only cost effective but that would also protect the area from the process chemistry.

The Solution

NHE suggested the use of a Koroseal® PVC liner from Witt Lining Systems, which has a high resistance to strong corrosives such as acids, alkalis and salts. Initially, NHE provided Rimex with samples to test the chemical resistance and, following the test, there was no evidence of any chemical attack. This resulted in a solution far superior in performance to the alternative acid resistant screed process.

This is particularly important in the case of the Rimex application as in one corner of the pit there is a lower level pumping sump which is continuously holding liquid with varying degrees of chemical contamination. The dielectrically-welded seams and corners used by Witt Lining Systems maximise lining performance while irregular shapes including outlets, outflows and flanges can be readily incorporated into each individual design. Previously Rimex had set a tank into the ground and applied a chemical resistant screed above it, however the dissimilar materials and differential rate of the thermal expansion resulted in a build-up of chemicals behind the tank which attacked the concrete.

“ NHE not only met our needs but they also provided us with a lining method that was cost effective. By producing a custom made solution installation was quick and easy and we are really happy with the end result.”

**Daniel Meakin,
Plant Manger, Rimex**

- Superior acid and alkali protection from corrosion to tank
- Custom made lining perfectly fits tank and sump in one piece with joints dielectrically RF frequency welded for optimum chemical resistance
- Issues with build-up of chemicals in sump attacking concrete eliminated
- Liner installed by NHE engineers well within timescales
- Cost effective solution

To resolve this issue the Witt Liner sump was integrated with the main pit liner thereby ensuring a completely homogenous construction to eliminate this problem.

The bag liner was made to suit the actual dimensions of the pit and sump in one piece. The concrete was then laid to fall to self-drain the pumping sump area and the bag liner was manufactured with a 5 mm tolerance to match the size of the concrete.

The bag liner was delivered in one piece and installed by NHE in a matter of a few days making a considerable saving on time and associated implementation costs. The bag liner joints are dielectrically RF frequency welded through the entire 5mm material thickness. This offers far superior chemical resistance through the entire thickness of the material whereas chemical resistant screeds typically rely on much thinner seal coats to give chemical resistance.

Why NHE?

By consulting NHE, Rimex were provided with a solution that delivered value for money with operating efficiency, safety, versatility and ease of maintenance. In all cases, because linings are not bonded to the tanks they can be easily installed and repaired if damaged.

Importantly, each installation is custom fabricated to meet precise application requirements. With the ability to tailor installations the range of processing requirements that can be fulfilled by NHE is extensive.

Witt Lining Systems is the market leader in developing innovative lining solutions to corrosion problems for more than 40 years. Its well-established range of chemical processing and surface finishing tank liners are exclusive to NHE in the UK.

Daniel Meakin, Colouring Plant Manager at Rimex said: "We consulted NHE for a solution to our corrosion issues at the plant due to their long-standing reputation in the industry. They not only met our needs but they also provided us with a lining method that was cost effective. By producing a custom made solution installation was quick and easy and we are really happy with the end result."

Mark Cattle, Sales Director at NHE said: "It was great to be able to offer Rimex a robust answer to the problem of chemical attack in collection sumps and pits. They have been customers for over 25 years. The Witt Lining System improves the secondary containment performance offering better chemical resistance and faster installation time, providing long term piece of mind from an environmental standpoint with less ongoing maintenance."



Contact us



+44 (0)24 7625 3099



info@nhe.uk.com

www.nhe.uk.com