



Hempel's Condition Survey enables full coating repair without plant shutdown

Can you repair a coating system without shutting down a facility?

This was the challenge facing a smelting facility, which operates on behalf of a world-leading global mineral processing company. Corrosion and coating damage had begun to appear around the process ducts.

To avoid downtime in the facility, the plant operator had been carrying out frequent repairs of the ducts. However, these repairs didn't last long and the need for re-application was becoming very frequent.

The customer came to Hempel with a simple question: Can you apply a long-lasting coating system without bringing the facility to a halt?

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Hempel's Condition Survey

The challenge

The plant is in a remote location with harsh environmental conditions and outside temperatures regularly below freezing point. Our technical service team suggested starting with a Condition Survey to assess the situation.

A thorough inspection of the facility revealed duct surface temperatures of up to 100°C with temperature fluctuations of up to 30°C. These temperature fluctuations on the ducts make regular coating intervals extremely challenging and require a continuous application without intervals. In addition, there were strong magnetic fields. This meant it was not possible to apply the magnetic- inductive measuring principle, making it challenging to determine dry film thicknesses, or any other electronical measuring tools. By using Hempel's Condition Survey and despite the challenging conditions, Hempel's coating advisors found a solution to assess the plant and subsequent how to repair the ducts without shutting down the plant.

The solution

An analysis of the survey data by Hempel's coating advisors uncovered the main problem: The existing coating system was chalking, which in turn resulted in corrosion of the ducts.

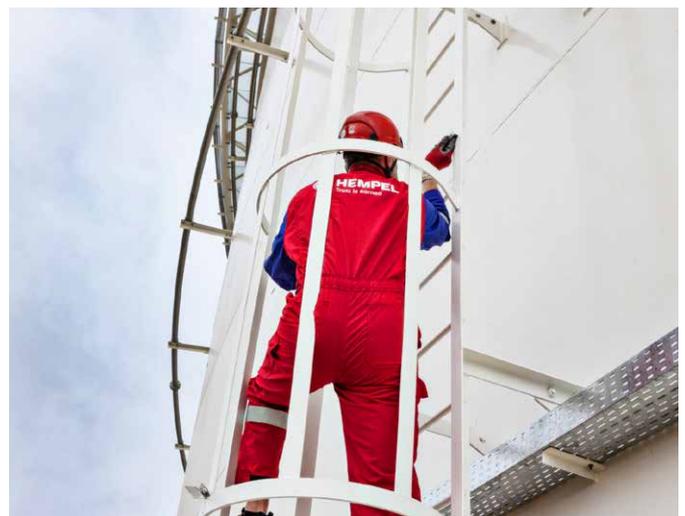
Our R&D and service teams worked together to develop a solution. Under ideal circumstances, the ducts should be at ambient temperature during repair to ensure proper surface preparation and coating application. However, this would mean a complete stop of production. Instead, we developed a unique and customised solution that would enable the repair of all surfaces while ensuring uninterrupted operation of the production facility.

Regarding surface preparation, the team decided to only blast ducts with well-advanced corrosion; the ducts with heavy chalking but minor corrosion could be cleaned.

To meet the challenging temperature requirements, we specified a multi-layer coating system to ensure correct application under these circumstances.

Before application, we tested the unique system and repair procedure in our R&D laboratory and on site. Then, using insights from the Condition Survey, we created a customised application schedule with adjusted overcoating intervals for areas with particularly high surface temperatures and temperature fluctuations.

The plant's coating system is now being repaired and once complete, it is expected to have a durability of up to 25 years.



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