

CASE STUDY: Chemical Products

TIVAR® 88 High Performance Lining Solution

THE CASE IN BRIEF

Application: Sulphuric Acid Storage Bunkers

Quantity: 6 bunkers

Liner: TIVAR® 88, 20mm Thick

Bulk Material: Sulphuric gravel and pyrite, both moistened with sulphuric acid

Substrate: ST 50 Steel

Problem: Caking, bridging, chemical wear

Date Installed: 2000

TIVAR® 88 LINERS ELIMINATE CHEMICAL WEAR IN BUNKERS

Background: Sachtlenben Chemie is a leading manufacturer of chemical products with a unique range of white pigments and extenders, such as titanium dioxide, as well as functional additives and water chemicals. The company uses a sulphate process to manufacture titanium dioxide and produces its own sulphuric acid to be used in the process. It operates one of the largest sulphuric acid production plants in Europe.

Problem: Sulphuric acid is extracted from either sulphuric gravel or pyrite. Both the gravel and the pyrite are abrasive materials that can cause equipment damage as they move through the process. However, an even greater challenge existed because prior to storage in the bunkers, these raw materials are slightly moistened with sulphuric acid. The addition of the sulphuric acid turns the raw materials into sticky, non free-flowing particles that would cake and bridge as the materials were transferred into the bunkers. In addition, maintenance expenses were unacceptably high due to ongoing bunker wall repair and replacement from the chemical corrosion caused by the sulphuric acid.

Solution: Staff at Sachtleben was challenged to find an economical solution that would address the wear problems experienced in the bunkers. Working with SystemTIVAR® Engineering, the company initiated a thorough material analysis and bunker geometry assessment. Based on the results of that testing, 20 mm-thick TIVAR® 88 liners were installed in all six bunkers. To prevent bulk material migration behind the liner, corners were lined by preformed shells, and proprietary welding techniques were used on all vertical butt joints, corners and fastening holes.

Results: With the liners in place for nearly four years now, the company is still very satisfied with the results. Material flow problems are a thing of the past and there are no interruptions to the production process. In addition, the bunker walls no longer show any sign of chemical wear.

Important: Most plastics will ignite and sustain flame under certain conditions. Caution is urged where any material may be exposed to open flame or heat generating equipment. Use Material Safety Data Sheets to determine auto-ignition and flashpoint temperatures of material or consult Quadrant Engineering Plastic Products.

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