Kingfisher

CHEMICAL EQUIPMENT FACT SHEET NO. 0002

Industry:
Chemical

Plant:
Titanium Dioxide

Lining System:
K-SIL

K-SIL LINED CHLORINATOR PIPEWORK

Key Benefits:

- ✓ **Reduce material build-up**
- ✓ **Improve process efficiency**
- ✓ **Eliminate cost to repair**

Problem: In the chemical industry, corrosion protection has long been a focal point due to its detrimental impact on capital plant and equipment. Failure to address corrosion can result in plant degradation, unplanned shutdowns, costly repairs, and potential environmental breaches or safety hazards. To mitigate these risks, the industry has adopted best engineering practices, including formal codes of practices, making compliance mandatory for chemical storage and handling. While the industry has made strides in corrosion prevention, there's a growing recognition of the need to protect plant equipment from abrasive powders and bulk solids encountered in chemical processing operations. Early intervention using technologies such as wear-resistant materials, while not mandatory, offers operators peace of mind by safeguarding equipment against premature failure and regulatory violations.

Solution: One notable instance involved re-engineering a pneumatic conveying pipework system used in a fluidized bed chlorinator for titanium dioxide production. The system injected recycled ore and coke into the chlorinator, a critical process for titanium dioxide synthesis. Despite previous efforts using various wear-resistant materials, frequent pipework replacements disrupted operations and posed safety risks.

Benefits: Drawing from previous years of experience, Kingfisher proposed a solution leveraging their range of ceramic-resistant liners, including cast basalt, high alumina oxide, silicon carbide, and zirconium. Collaborating closely with plant reliability engineers, Kingfisher conducted trials and inspections over two to three years, supplying and testing various grades of ceramic liners to identify the most effective solution. Based on real-time data and performance evaluations, Kingfisher recommended a tailored solution: using 6mm thick 92P K-ALOX high alumina ceramic liners for upstream pipes and bends, and K-SIL RB silicon carbide liners for downstream components. These liners met stringent compliance standards, including pressure equipment directives, ensuring integrity and safety.

Protecting Industry Worldwide

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