Blasch Precision Ceramics Case Study

Sulfuric Acid VectorWall™ Use Case Study

Unlocking Efficiency: Swift Solutions for Reliable Operations

Company Facts

- Location: United States
- Sulfuric Acid Plant

Challenge

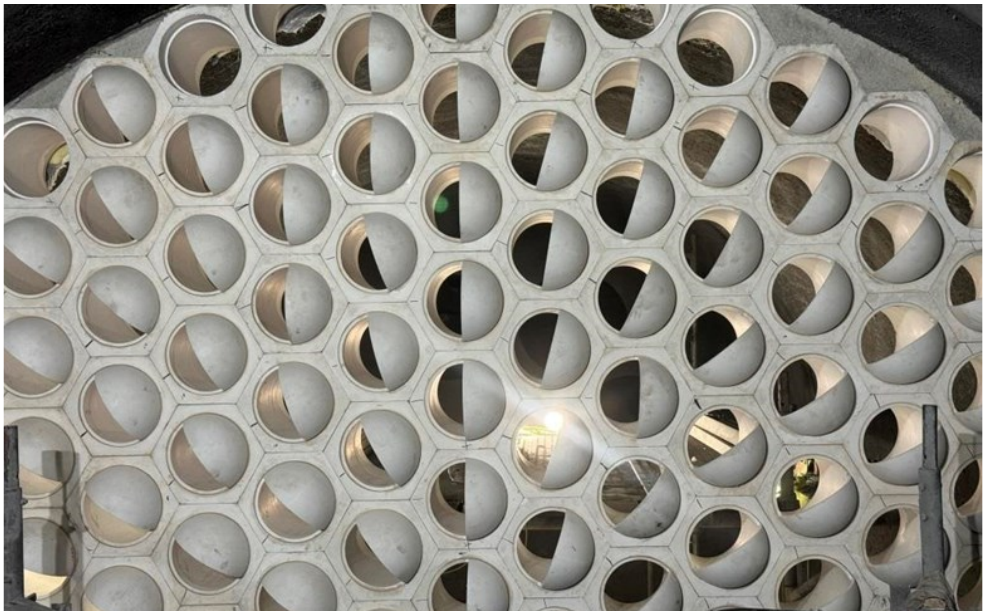
- Brick baffle walls in a 14ft diameter sulfur burning unit needed to be replaced quickly

Product Used

- Blasch VectorWall™ Mixing Checkerwall

Benefits

- Mortarless design ensures rapid installation, minimizing downtime
- Superior structural stability over traditional brick baffles
- Boosts operational efficiency:
  - ◊ Increase RF front zone temperature
  - ◊ Provide tighter residence time distribution
  - ◊ Reduced pressure drop over traditional baffle walls



Customer Background

The customer is a chemical company, operating a sulfur burning and spent acid regeneration plant. Sulfuric acid (H_2SO_4) is used as a catalyst in refinery alkylation units to produce alkylate. It is used as a blending agent for the production of high-octane fuel. Once the sulfuric acid reaction occurs to make alkylate, the spent sulfuric acid can be regenerated back to its original high-quality sulfuric acid.

Challenge

The customer found themselves in a critical scenario as their sulfur burning units urgently demanded refractory repairs. The task at hand involved the removal of two alternating brick baffle walls, a process that mandated a complete shutdown of operations. Given the nature of their industry, every passing hour of downtime represents not just a pause in production but also a tangible loss in potential revenue. The traditional approach to constructing baffle walls with bricks poses challenges. It requires skilled bricklayers and considerable time for the mortar to properly cure, which prolongs the shutdown an extended period of time. In response to this time-sensitive predicament, the customer actively sought out alternatives that could

facilitate quick installation without compromising quality, and minimize the overall downtime, safeguarding against any further revenue losses.



Figure 1: Blasch Vectorwall installed in a 14-foot diameter sulfur burning unit

Solution

The customer approached Blasch, a trusted provider with over 30 years of experience in servicing the Chemical and Petrochemical industry. Given Blasch's preparedness and stock availability for such situations, the decision was made to install the Blasch Vectorwall as a replacement for the traditional brick baffle walls, which would provide faster installation and a mortarless design. Blasch had ample Vectorwall pieces readily available, and upon receiving the purchase order, seven crates were promptly dispatched and delivered to the site within a day. The installation was efficiently carried out by a contractor experienced in installing Vectorwalls. Remarkably, from the initial contact to the resumption of plant operations, the entire process took less than two weeks, significantly reducing both downtime and costs for the customer.

Results

The implementation of the Blasch Vectorwall resulted in tangible improvements for the customer. The rapid installation process ensured minimal downtime, allowing the plant to resume operations quickly. Moreover, the Vectorwall's mortarless design provided enhanced stability and reliability compared to traditional brick baffles, offering long-term benefits for plant operations. Additionally, the Vectorwall's unique design led to several process advantages, including increased RF front zone temperature, better mixing, and reduced pressure drop, ultimately contributing to improved efficiency and throughput.



Figure 2: Close up of Blasch Vector tiles installed to direct the flow within the sulfur burning unit

Looking Forward

Blasch is committed to advancing its product offerings and service capabilities to better serve the evolving needs of the Chemical and Petrochemical industry. This includes ongoing optimization of the Vectorwall design to maximize process efficiency and reliability. Furthermore, Blasch will continue to prioritize stock availability and responsiveness to ensure prompt support during emergency situations. By maintaining close collaboration with customers and understanding their specific challenges, Blasch aims to develop tailored solutions that drive operational excellence and minimize downtime for plant operators.