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MULTINATIONAL CEMENT COMPANY

CASE STUDY NR 14 • USA

DRY SORBENT INJECTION FOR BETTER HCL AND SO₂ CONTROL

THE CHALLENGE

The US cement industry is facing compliance challenges related to changes in National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations. These are requiring many plants to add equipment to control emissions of mercury, total hydrocarbons, particulate matter and hydrochloric acid (HCl).

Cemex is a worldwide cement producer with an annual capacity in the US of more than 10 million tons. It needed to meet an HCl limit of 3 ppmv, averaged over a rolling 30-day period. The company decided to use dry sorbent injection (DSI) of calcium-based products, a low-capital-cost approach to limiting emissions of HCl and other acid gases.

THE LHOIST SOLUTION

Working with the company's technical team, our flue gas treatment experts conducted trials comparing standard hydrated lime with Sorbacal® SP, an enhanced hydrated lime designed for emission control applications. The test included injections at three locations at various feed rates to determine optimum performance.

A portable DSI system was brought to the site to inject the hydrated lime reagents provided by Lhoist. As part of the assessment, a Fourier transform infrared (FTIR) system provided real-time stack gas analysis. Production at the plant was unaffected during the week-long test.





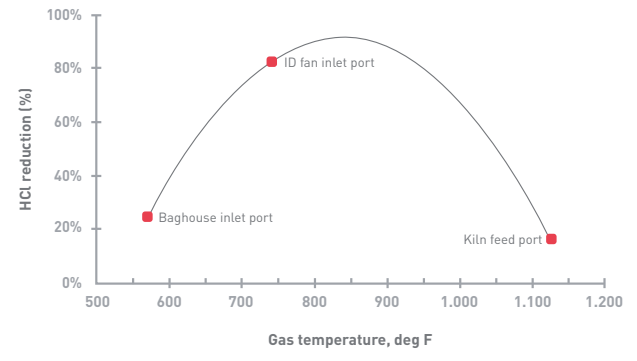
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THE BENEFITS

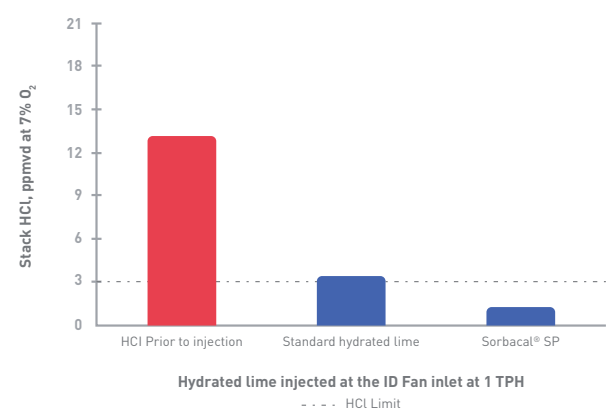
The trials confirmed that DSI using hydrated lime would be an effective solution for controlling the plant's HCl emissions. Injecting Sorbacal® SP into the ID fan prior to the baghouse provided the best removal levels. Moreover, Sorbacal® SP outperformed standard hydrated lime in every case.

Lhoist has continued to work with this customer at other plants to demonstrate the viability of this technology under various operating conditions. Cemex is currently evaluating the installation of calcium-based DSI at all its facilities to meet the NESHAP requirements.

HCl reduction at injection location



HCl removal with hydrated lime: standard vs. Sorbacal® SP



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