Sorbacal®

Solutions for AIR, LAND and WATER

Portland Cement Industry
NESHAP Compliance

Dry Sorbent Injection for Cement Plant HCl and SO_2 Control

Defining the Issue

The cement industry is facing compliance challenges related to the upcoming Portland Cement NESHAP regulations which are requiring many plants to add pollution control devices for control of mercury, total hydrocarbons, particulate matter, and hydrochloric acid (HCl).

- The Portland Cement NESHAP requires both existing and new major source cement producers to meet an HCl limit of three ppmv, averaged over a rolling 30-day period.
- Dry Sorbent Injection (DSI) of calcium-based products is a low capital cost approach for the cement industry to meet these new HCl emission requirements as well as other acid gases as needed.
- As a result of this trial, this worldwide cement producer with more than 10 million tons/yr of U.S. cement capacity is evaluating calcium-based DSI at all of their facilities as a solution to the upcoming Portland Cement NESHAP requirements.

The Solution

The Flue Gas Treatment team at Lhoist North America worked with the customer to develop a test plan that included running trials comparing both standard hydrated lime with Sorbacal® SP, an enhanced hydrated lime specifically designed for emission control applications. The trial included injections at three locations and various feed rates to determine the most effective performance of the hydrated lime DSI system.

- A portable dry sorbent injection (DSI) system was utilized on site to inject the hydrated lime reagents provided by Lhoist North America.
- In addition to standard hydrated lime, an optimized hydrated lime specifically designed for emission control applications, Sorbacal® SP, was also provided for this trial.
- A portable FTIR system was utilized during the trial to provide real-time stack gas analysis data.
- A joint team of technicians and engineers assisted in the completion of these trials over a week time period without affecting production.

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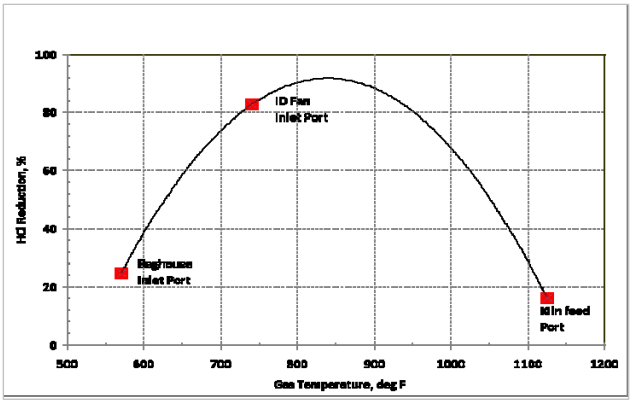
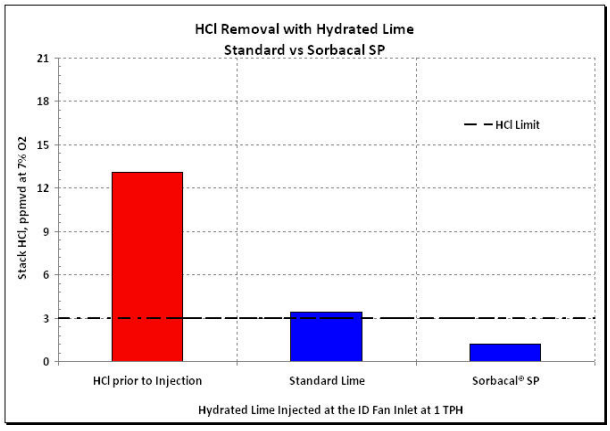
Conclusions

The results of the trial confirmed that calcium-based DSI using hydrated lime is an effective solution for this plant's future HCl emission limitations associated with the Portland Cement NESHAP.

- The results indicate that at this plant injecting Sorbacal® SP into the ID fan prior to the baghouse provided the best removal rates.
- In every case, Sorbacal® SP performed better than standard hydrated lime.
- For cement plant applications, DSI using hydrated lime may prove to be a cost effective alternative to traditional FGD systems in meeting the upcoming Portland Cement NESHAP rule. Lhoist North America has been working with this customer at other plants to demonstrate the viability of this technology under various operating conditions with continued success.



HCl Reduction at Injection Location



Standard Hydrate vs. Sorbacal® SP Performance

Contact Lhoist North America's Flue Gas Treatment Team today, to discuss how we can help with your compliance requirements!

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