



INDUSTRIAL BOILER

CASE STUDY NR 11 • USA

HCL AND MERCURY CONTROL WITH A LOW-COST DSI SOLUTION

THE CHALLENGE

Industrial boilers in the US are 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 mercury, hydrogen chloride (HCl), and particulate matter. Dry sorbent injection (DSI) of calcium-based products is a low-capital-cost approach to meeting these new limits for HCl and other acid gases.

When incremental mercury control is also a concern, a blended sorbent containing both an enhanced hydrated lime and activated carbon can be an economical approach, as it reduces the need for two separate injection systems. Chemours Washington Works, a major US chemical manufacturer located in West Virginia, asked Lhoist to provide such a product.

THE LHOIST SOLUTION

Our flue gas treatment team worked with the customer to conduct trials comparing separate injections of Sorbacal® SP and activated carbon to a single injection of a Sorbacal® Micro blend. Sorbacal® SP is an enhanced hydrated lime designed for emission control applications, while the Sorbacal® Micro blend is a customized blend of both Sorbacal® SP and high-quality, brominated activated carbon.

A portable DSI system with dual injection capability was used on site to separately inject the hydrated lime and activated carbon. It was then used to inject the blended sorbent into the duct just prior to an existing baghouse, where the temperature was 380-390°F. A Fourier transform infrared (FTIR) system provided real-time stack acid gas analysis. Production was not affected during the test.

THE BENEFITS

The trial confirmed that the Sorbacal® Micro blend would be an effective solution for controlling the plant's HCl and mercury emissions.

It allowed the customer to use its existing single-injection DSI system, reducing the cost and time to implement controls while meeting both emission limits simultaneously. Over 95% of HCl and more than 80% of mercury were removed with the Sorbacal® Micro blend at low feed rates. These reductions corresponded to the NESHAP limits.

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