Sorbacal® Heat

ARN BV
afvalenergiecentrale

WASTE INCINERATOR

CASE STUDY NR 27 • EUROPE

Sorbacal® Heat 1500: FURNACE SORBENT INJECTION FOR ANTI-FOULING BENEFITS

THE CHALLENGE

ARN BV is a Waste-to-energy plant based in Weurt, NL whichhas been in operation since 1987. ARN incinerates annually around 300,000 tons of municipal solid waste (MSW) and industrial waste under 2 separated lines.

ARN is facing severe fouling inside boilers on both lines, which constrains them to proceed to excessive cleaning sessions. The build ups inside the boiler occur because of the variability of the fuel quality, thedesign of the internal process and the composition of the ash.

This is a real challenge faced by many incinerators, as it degrades the boiler performance over time and requires high maintenance cost to keep the installation operational.

The main consequences of fouling inside the boiler are:

- Safety issue related to maintenance inside the boiler
- Higher boiler cleaning costs
- Heavy maintenance procedures Corrosion inside the boiler
- Lower thermal exchange, less energy generation

THE LHOIST SOLUTION

Sorbacal® Heat 1500 is a dry and finely powdered product, based on semi-hydrated dolime. This material is injected constantly at hightemperature (above 900°C) in the boiler, by means of standard or Venturi injection lances. Venturi lances are specifically designed nozzles able to improve additive dispersion inside the boiler.

Sorbacal® Heat 1500 mechanically and chemically acts on the build ups, which become brittle and easier to clean. Thereby, reducingboiler maintenance and interruption frequency gave a smootherand more flexible operation, at higher capacity load.

The purpose of Sorbacal® Heat 1500 injection is to reduce the boiler fouling which is demonstrated by monitoring key operational parameters (boiler exit temperature, steam flow, pressure, deposit analysis, etc.) Typically, the benefits of injecting Sorbacal® Heat 1500 are observed after a continuous injection period of 1 month.

THE BENEFITS

After a month of in-boiler injection of Sorbacal® Heat 1500 at high temperature, the number of explosion cleanings reduced, which allowed to save in maintenance time and costs, and possibly to regain operational capacity. The SO_2 neutralization capacity of Sorbacal® Heat 1500 also enables significant savings for the downstream flue gas treatment process.

The benefits brought by Sorbacal® Heat 1500 are:

- Lower maintenance costs with no fouling issues and lower risk ofcorrosion (divided by 4)
- Lifetime extension of the boiler
- Neutralization of acid gas (less emission peaks) Improved boiler efficiency
- Optimization of energy productivity

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