

# FuelSolv\* FS3954: Controls Ash-Clogging in an Incinerator Boiler

Setting up a FuelSolv FS3954 treatment program on a 7 ton/hour household waste incinerator that produces electricity for EDF and heats horticultural greenhouses

## Challenge

During its winter season, a household waste incinerator faces many shutdowns due to the accumulation of deposits on the boiler's exchange surfaces. As a result of that reduction in heat exchange, the limit temperature acceptable for the first superheater is reached quickly.

Several shutdowns are necessary during the season (5 months) for a quick cleaning of the smoke pathways, i.e. one shutdown about every six weeks. Those shutdowns cause operating losses:

- Treatment of household waste at an outside site (transfer cost)
- EDF penalty for not supplying electricity
- Outside servicing costs

## Solution

GE Infrastructure Water & Process Technologies offers an expansive FuelSolv\* FS3954 treatment that limits boiler clogging to reduce the number of shutdowns for cleaning over the course of the season.

A laboratory study of vitrification tests was done on ashes from stages 2 and 3 of the boiler. Those tests show the effect of FuelSolv FS3954 for a dosing greater than 2% with respect to ash at a temperature of 750°C.



White 1% 2% 4%

Due to the rate of ash generated by household waste, we recommend a dosing of 500 g of FuelSolv FS3954/ton of waste incinerated.

FuelSolv FS3954 comes in the form of non-hygroscopic particles that can be injected into the boiler using a compressed-air doser.

## View of Injection System:



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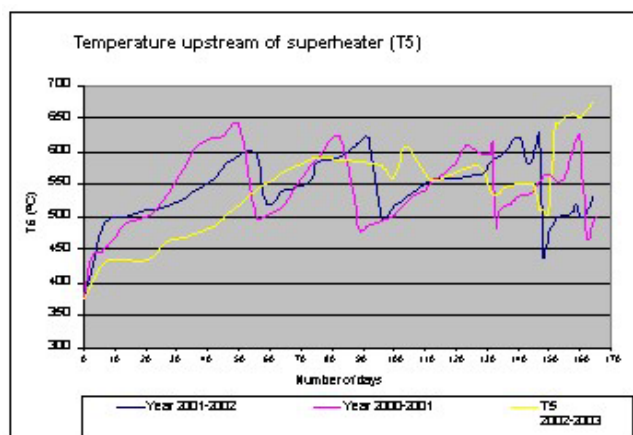
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In the test, two injection points were placed at the outlet of the furnace in the first riser stage of the boiler (smoke temperature 850°C, the minimum temperature for injection being 760°C).

The test was conducted from December 2002 to May 2003.

## Results

The critical parameter for validating the test is the temperature of the smoke (T5) upstream of the superheaters. That temperature enables the operator to determine the shutdown for cleaning of the installation. (650°C).



Thanks to our technology, the client achieved its primary goal: no shutdown between the two scheduled annual technical maintenances.

Achieving that goal enabled the operator to make significant gains:

- Fulfill electricity-supply commitments with EDF
- No additional cost from outside treatments of household waste
- Reduction in operating cost