Antifouling Treatment with FuelSolv* FS3954 in a Waste-To-Energy Plant

CASE STUDY I Power

| Challenge

Due to continuous agglomeration and sintering of semi-molten ash particles onto the walls of the combustion chamber (see Figure 1), their progressive thickening, collapsing and falling as blocks on the grates, a waste-to-energy plant, property of Herambiente SpA and located in Italy, was forced to endure unwanted and unplanned outages. Typically, 1-2 unplanned outages per year occurred, with all the related costs in terms of maintenance and production loss.

| Solution

Veolia proposed the use of FuelSolv FS3954 technology, in order to embrittle the deposits, make them more friable and easily removable, eliminating the risk of blocks falling onto the grates with consequent damages and needs for outages (see Figure 2).

Figure 1

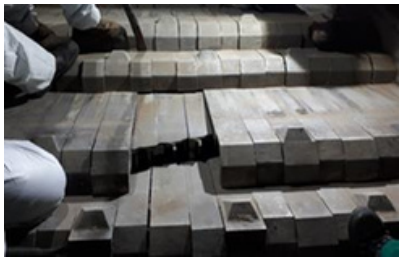

Figure 2

Based on feed material's characteristics and years of experience at similar plants, Veolia proposed an initial dosing rate of 1 kg of product per ton of incinerated waste. The initial dose rate was subsequently decreased to 700 g/t and maintained at such level without any decrease in performance.
The product, a non-hygroscopic, granulated, hydrated silicate, was fed via the secondary air duct through two injection points (see Figure 3), using a compressed air feed system (see Figure 4).

No more unplanned outages

Total savings: > 300 k$/y

| Results

After a first cleaning of the combustion chamber, which was required in order to establish a baseline for the conditions of the system, treatment was started and the site personnel could observe a significant change in the behaviour of the deposits. Instead of a compact, hard, collapsing deposit, the new deposits were more friable and no longer prone to build-up of thick and compact clusters.

Due to Veolia's FuelSolv FS3954 treatment, the site was able to keep the walls of the combustion chamber much cleaner than in the past (see Figure 5) without the need of intermediate cleaning between one scheduled stop and the other.
No further failures of the grates occurred since the treatment started, allowing a continuous run of the system without unplanned outages.

In the end, the estimated yearly savings for the site, considering maintenance and missed incomes for RDF delivery and electricity production, exceeded 300 k$/y.

Figure 3

Figure 4

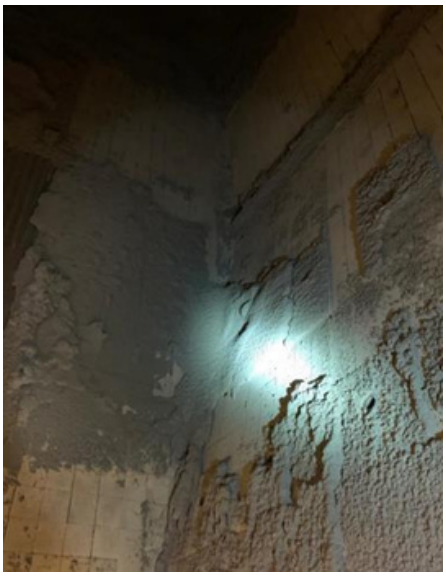

Figure 5

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