Insulation of chimney with TC 101
Shale oil plant in Narwa (Estonia)

At the beginning of 2011 we had got an order from AS Eesti Energia Tehnoloogiatööstus (Estonia) for Temp-Coat TC 101 supply.

The project department of the company in common with TEKOS Co. from Lithuania (the project department of Ignalina Nuclear Station) have done a project for reconstruction of chimneys for Shale oil plant in Narwa (Estonia).

The problem's description. The Shale oil plant in Narwa. From very beginning only one brick chimney had been staying on the basement. Later, two furnaces without flue damper had been connected to the chimney. So, when the first furnace was took out of service for reconstruction, the second one worked in wrong way. Moreover, an electrical filter was installed at the exit of chimney. It caused a necessity of one's adjustment when one of furnace should be shut down.

Under the law of Estonia, the building is not new if the construction is being building on the old basement. So, it was resolved to install two new chimneys on the old basement. Thereby the problems described above were eliminated. But, such solution brought some restrictions on weight and geometrical dimensions of the chimneys.

In addition, we had got a few new tasks:

- to prevent a process of steam condensation on the walls of the chimney and so to prolong a operation life of metal constructions;
- to prevent too fast cooling-down of waste gas, as this process reduce a draught in the furnace and reduce an combustion efficiency.

The solution: to cover metal constructions with liquid thermal-insulation coating Temp-Coat TC101.

The application process was carried out by Graco airless spray gun at the plant. Further, the elements of construction were installed on the building area.

The technical specification of the chimney:

- diameter – 1.4 m
- height - 80 m
- pipe amount – 2 (in case)
- gas's flow – 7000 m^3/h
- gas's temperature 150-700 ^0C
- acidity – 3.2 pH
- ash – 25-35 mgr/m^3

5 coats of Temp-Coat TC101 were applied in compliance with project.

In the sequel operation the accuracy of project solution was confirmed by monitoring. From entry to exit of the chimney the temperature of waste gas drops just in 7 degrees of Celsius.

In addition, a hotwell and special clapper were provided in the chimney's construction. The hotwell have been empty during one year of operation, so the condensate is not arises. Just from time to time (Not often) the hotwell have to be cleaned out from dry ash.