

# Diploma Thesis Assignment

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Study Programme: N2301 Mechanical Engineering

Study Branch: 2302T006 Energy Engineering

Title: **Proposal of Rotary Kiln for Hazardous Waste Incineration Plant.**  
**Návrh spalovny s rotační komorou pro nebezpečné odpady**

The thesis language: English

## Description:

Develop a draft of rotary kiln concept for a hazardous waste incinerator for solid and liquid fuels containing PCDD and PCDF hazardous substances. The incinerator consists of a primary combustion chamber fitted with a natural gas stabilizer burner, a secondary combustion chamber, a heat exchanger (flue gas & water) and a two-stage flue gas cleaning based on dry sorption and a wet scrubbing system based on NaOH. Perform basic thermal and aerodynamic calculations. Nominal capacity of incinerator: 1200 kg / h (solid wastes 1000 kg / h, liquid waste 200 kg / h), temperature from secondary combustion chamber is 1100 ° C, solid waste heating value: 17 MJ / kg, liquid waste: 33 MJ / kg.

## References:

A.A.Boateng:Rotary kilns, B/H. [http://www.fikcc.com/pdf/Rotary\\_Kilns\\_Transport\\_Phenomena\\_and\\_Transport\\_Processes.pdf](http://www.fikcc.com/pdf/Rotary_Kilns_Transport_Phenomena_and_Transport_Processes.pdf).

SADIK KAKAC. Boilers, evaporators, condensers. John Wiley. USA. New York 1991. CIP 90-22486 in library VŠB-TU Ostrava.

Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on the web sites of the faculty.

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