



# SEWAGE SLUDGE INCINERATION PLANT TO GROSSWILFERSDORF, AUSTRIA

**Turnkey greenfield sewage sludge incineration plant enables environmentally friendly and economically viable treatment of municipal and industrial sludge without additional fuel consumption.**

Completed in 2011, the Outotec sewage sludge incineration plant treats municipal and industrial sewage sludge from several local wastewater treatment plants. It carries out thermal sludge treatment based on fluidized bed (FB) technology – an environmentally friendly and economically viable solution for treating municipal and industrial sludge without additional fuel consumption. Built on a site with no wastewater treatment infrastructure, the plant caters to 100% third-party sludge from various sources. A key design criterion was the ability to process varying sludge qualities. Successful financing was based on secured long-term contracts.

## CHALLENGES

- Greenfield installation for 100% third-party sludge
- Varying sludge quality requiring a high degree of flexibility
- Strict emissions limits

## SOLUTION

- Turnkey sewage sludge incineration plant delivery
- Thermal treatment of sewage sludge in an Outotec Fluidized Bed Incinerator with open-nozzle grid
- Thermal oil dryer that uses recovered heat from incineration

## BENEFITS

- Minimal environmental emissions
- No auxiliary fuel required for treatment during normal operation
- Excess energy supplied to neighboring production plant

# OUTOTEC SLUDGE TREATMENT PLANT PROCESS

Sludge from various sources is stored in a sludge bunker (capacity 300 m<sup>3</sup>) and a portion is dried using a contact dryer operated with thermal oil. The vaporized water from the dryer is condensed in a condensation unit, which includes heat recovery. The dried sludge is then mixed with wet sludge before being injected into the FB incinerator, which has an open-nozzle grid. The plant has a capacity of 30,000 t/y and requires no external fuel for normal operation, and to prevent odor emissions the primary air is taken from the reception hall.

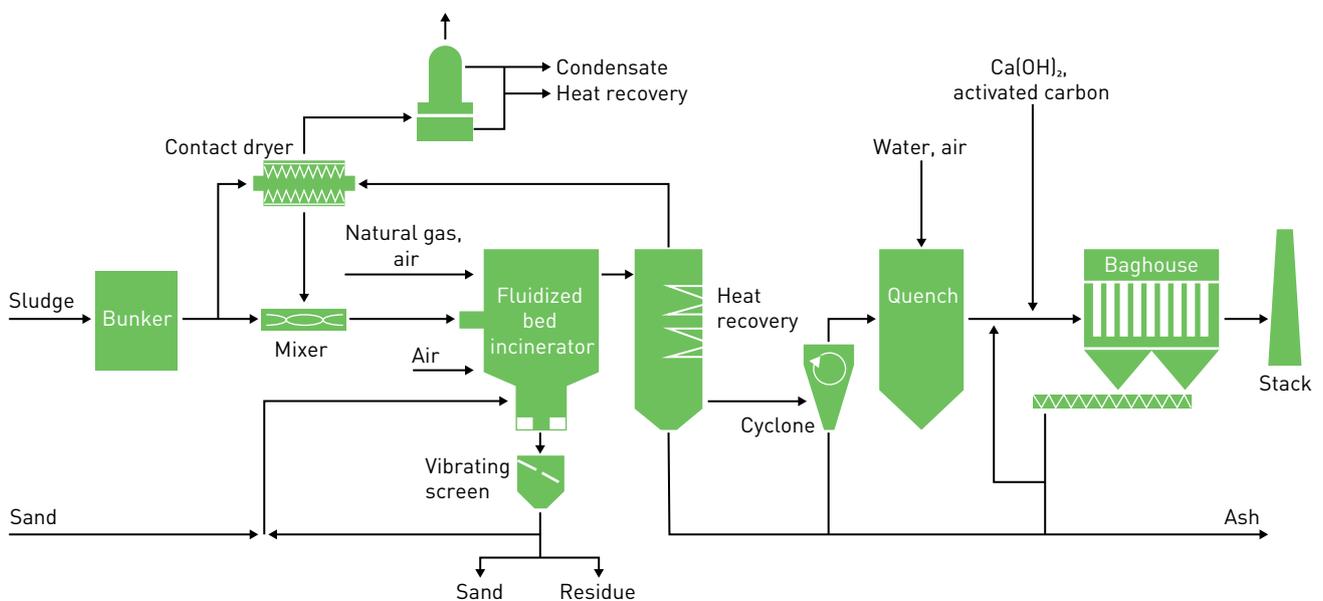
The heat of the hot flue gases from the FB incinerator is recovered using a thermal oil boiler and used in the sludge dryer and to preheat the air, with the excess sold to a neighboring production plant. The flue gas cleaning system starts with a cyclone to separate the bulk of the ash from the flue gas, which can then be used for phosphorous recycling. After the evaporation cooler the dry sorption system injects hydrated lime and activated carbon, and then filters through a baghouse. The cleaned flue gas exits the plant through the stack.

## Project scope

Outotec was responsible for the design, manufacture, and supply of all equipment, the installation and commissioning activities, including all construction work, as well as start-up support and operator training assistance. Furthermore, Outotec was also awarded an operation and maintenance contract for the plant.

## DESIGN DATA

Sludge dryer	
Inlet DS content	20-35%
Heat consumption	1,300 kW
Outlet DS content	75-80%
Fluidized bed incinerator	
Throughput	2,000 kg/h at >48% DS
Incinerator head temperature	870-900°C
Fluidizing air	2,250 Nm <sup>3</sup> /h at <200°C
Secondary air	1,800 Nm <sup>3</sup> /h at <200°C
Heat recovery boiler	
Thermal oil	230/180°C
Excess available heat	1,200 kW @ 85°C
Flue gas cleaning	
Flue gas quantity wet	6,200 m <sup>3</sup> /h
Flue gas outlet temperature	140°C
Emissions (acc. AVV standards) (at STP)	
Dust	<10 mg/m <sup>3</sup>
HCl	<10 mg/m <sup>3</sup>
HF	<0.7 mg/m <sup>3</sup>
SO <sub>2</sub>	<50 mg/m <sup>3</sup>
NO <sub>x</sub> (as NO <sub>2</sub> )	<150 mg/m <sup>3</sup>
CO	<50 mg/m <sup>3</sup>
Pb+Sn+	<0.5 mg/m <sup>3</sup>
PCDD/PCDF	<0.1 mg/m <sup>3</sup>



Outotec Sewage Sludge Incineration Plant 30

Outotec provides leading technologies and services for the sustainable use of Earth's natural resources. As the global leader in minerals and metals processing technology, we have developed many breakthrough technologies over the decades for our customers in metals and mining industry. We also provide innovative solutions for industrial water treatment, the utilization of alternative energy sources and the chemical industry. Outotec shares are listed on NASDAQ OMX Helsinki. [www.outotec.com](http://www.outotec.com)