

# Incinerators

Incineration (also called gasification, pyrolysis, plasma arc, and waste-to-energy) is the thermal treatment of disposed waste materials, converting it to ash, flue gas, and heat. Incineration reduces the original waste mass by up to 85% and the volume up to 95%. Flue gases are cleaned or burned before the final emissions are released into the atmosphere.

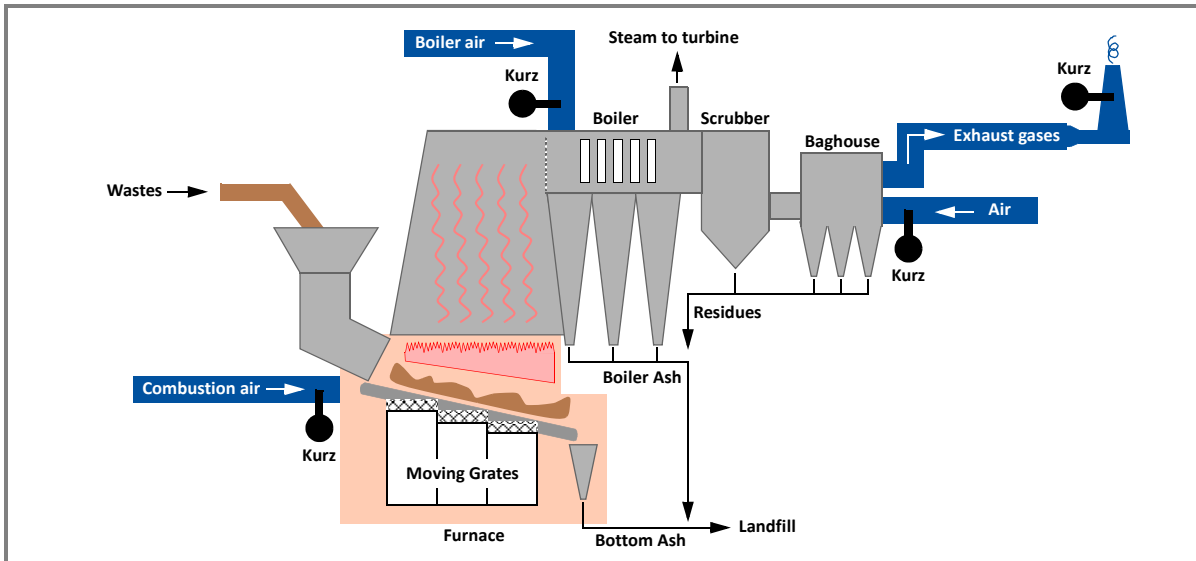


Incineration is popular in countries with limited land resources (such as Japan), while other countries (such as Denmark and Sweden) use the process to generate a valuable percentage of heat and electricity. Other countries that use incineration include France, Germany, Luxembourg, and the Netherlands.

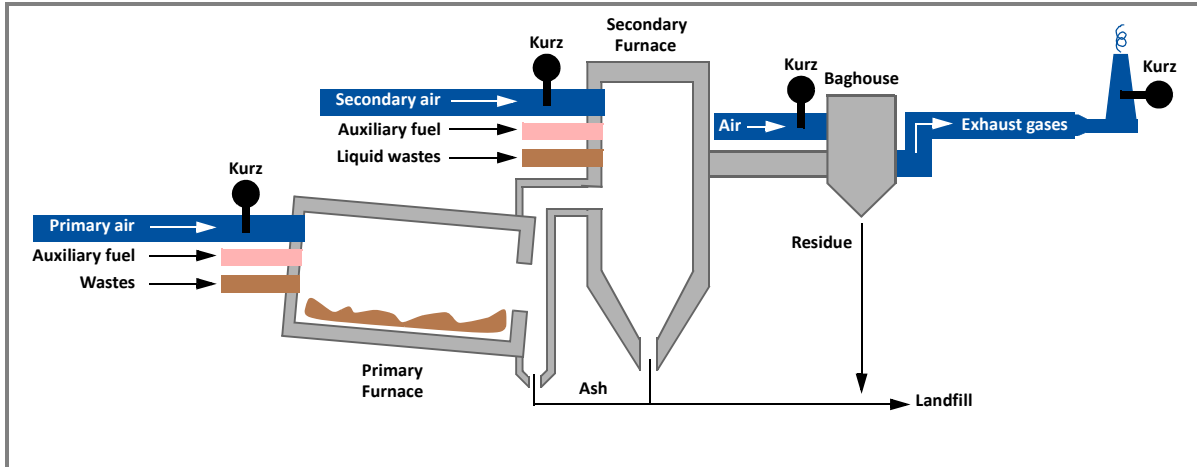
There are several types of incineration processes:

- Moving grate incinerator  
Using a moving grate, waste moves through the combustion chamber at a controlled rate to ensure complete and efficient combustion. Primary combustion air is used to help cool the moving grate, and secondary combustion air facilitates combustion.
- Rotary kiln incinerator  
The primary combustion chamber (minimum 800°C) is slightly inclined. Complete combustion occurs as waste is inserted while the chamber rotates. Primary ash is eliminated while off-gases go to the secondary combustion chamber (minimum 1000°C). Any remaining off-gases are directed toward controlled emissions.
- Fluidized bed  
A strong airflow is continually forced through a sandbed, causing the sand to be suspended and creating a fluidized bed. Waste and fuel are added. The suspended waste is agitated and circulated through the entire furnace as it becomes ash.

The heat from an incinerator can support cogeneration by heating boiler water, which in turn runs an engine to generate electricity.



**Simplified Moving Grate Incinerator**



**Simplified Rotary Kiln Incinerator**

Specific installations have included flow meters used in the following environments:

- Monitoring primary and secondary air to the furnace
- Measuring combustion air to a boiler
- Monitoring stack flue gas
- Measuring and monitoring emissions