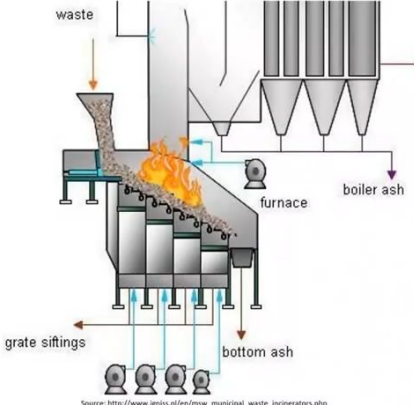




00:01

Waste-to-Energy

Grate incinerator for MSW burning

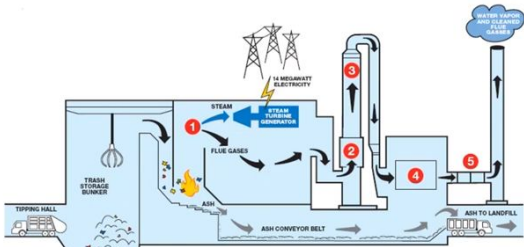


Source: http://www.igniss.pl/en/msw_municipal_waste_incinerators.php

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02:21

Waste-to-energy



POLLUTION CONTROL SYSTEM

1. NITROGEN OXIDE REMOVAL SYSTEM
2. MERCURY & DIOXIN REMOVAL SYSTEM
3. ACID GAS REMOVAL SYSTEM
4. PARTICULATE REMOVAL SYSTEM
5. POLLUTION CONTROL TESTS

Waste-to-Energy

- 90% reduction of trash volume
- Power generation
- Pollution control

Clc1ccc2c(c1)oc3cc(Cl)ccc3o2

Polychlorinated dibenzo-p-dioxins

ecomaine
the future of regional waste systems
www.ecomaine.org

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03:57

Incineration : Advantages & Disadvantages

Advantages	Disadvantages
Most suitable for high calorific value waste, pathological wastes etc.,	Less suitable for aqueous/high moisture content/ low calorific value and chlorinated waste
Units with continuous feed and high throughput can be setup	Excessive moisture and inert content affects net energy recovery; auxiliary fuel support may be required to sustain combustion
Thermal energy recovery for direct heating and power generation	Concern of toxic metals that may concentrate in ash, SO _x , NO _x , chlorinated compounds, ranging from HCl to dioxin
Low land area requirement	High capital and O&M cost
Can be located within city limits reducing the cost of waste transportation	Skilled personnel requirement for O&M
Hygienic	Overall efficiency low for small power stations

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08:50

EMISSIONS FROM INCINERATORS

Emissions:

- Organic Compounds: **Dioxins**, **Furans**, Polychlorinated biphenyls (PCBs), Volatile organic compounds (VOCs), Polycyclic aromatic hydrocarbons (PAHs), Chlorinated Benzenes etc.
- Heavy Metals: As, Cd, Cr, Cu, **Hg**, Mn, Ni, Pb, etc.
- Gases: HCl, HF, HBr, SO_x, NO_x, CO, CO₂ etc.

Solid Outputs:

- Fly ash: contains soot, PAHs, PCBs, Dioxins, Furans and Heavy Metals like Pb, Cd, Cu, Zn etc.
 - Particulate Matter: PM 2.5, PM 10

Incinerator Effluent:

- Wastewater from wet exhaust gas cleaning contains heavy metals (Pb, Cd, Sb, Cu, Hg, Zn etc.), neutral salts and unburned organic material.

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10:47

Gasification

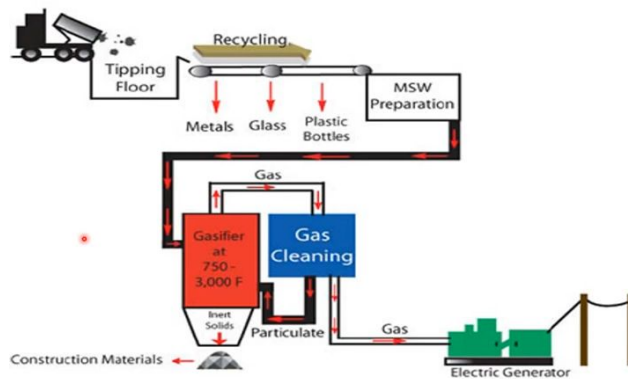
- Partial oxidation of the organic and fossil fuel based materials into gaseous fuel (CO and H₂) at elevated temperature.
- The gaseous fuel (Synthetic fuel) can be further used either to generate energy or to form other products.
- Comparatively new technology for MSW

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[12:27](#)

Gasification



Source: <https://www.altenergymag.com/article/2009/06/gasification-of-municipal-solid-waste/545/>

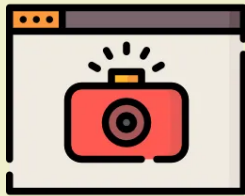
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