

Waste energy recovery

The waste management principles

(Article 3 of the European Directive 2006/12 / EC)



The integrated system of waste management provides for:

- 1 Recycling: in order to yield the maximum recovery of materials;
- 2 Incineration: in order to recover the maximum energy from non-recyclable waste;
- 3 Minimum environmental impact: activity to collect, recover materials and energy, avoiding the use of landfill.





Garbage disposal in major European cities



Incineration: the best technology

for the production of electricity and heat through waste, preserving the environment



The **Incinerator** has the following functions:

- 1. Delivery and storage of waste;
- 2. Combustion and steam production;
- 3. Electricity and heat production;
- 4. Collect waste solid (slag, ash and dust);
- 5. Clean the smoke and control the atmosphere.



Problems resolved and advantages of incineration



SED LEO

What you use and what the Incineration produces



Energy and mass balance



How much electricity do you get?



How much heat?







8 showers of 3 minutes at 32°C



Emissions to the atmosphere

(average year value 2010 on incineration "Milan Silla 2" compared to the limits of values of the European Directive 2000/76 / EC)



Micropollutants [mg/Nm3]

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Parameters	Incineration "Milan Silla 2"	Value Limit
Polycyclic aromatics hydrocarbons	< 0,00003	0,01
Dioxins and furans (PCDD + PCDF)	0,0009 x 10 ⁻⁶	0,1 × 10 ⁻⁶
Cadmium and Tallium	< 0,0013	0,05
Mercury	< 0,006	0,05
Nickel	< 0,001	0,1
Metals (Sb + As + Pb + Cr + Co + Mn + Ni + V + Sn)	< 0,0115	0,5



Comparison of emissions with Best Available Technologies (BAT)

Parameters	Value Limit [mg/Nm3]	BAT Plant (IPCC 2006) [mg/Nm3]	Incineration "Milan Silla 2" (year 2010) [mg/Nm3]
S0 ₂	50	1-40	0,16
SO _x (measurement determined NO ₂)	200	40-100	39,3
Dust	10	1-5	< 0,1
CO	50	5-30	5,9
нсі	10	1-8	2,2
NH ₃	10	< 10	0,8
TOC (total organic carbon)	10	1-10	0,44
HF	1	< 0,001	< 0,0001
Cd + TI	0,05	0,005-0,05	< 0,00013
Hg	0,05	0,001-0,02	< 0,006
As + Co + Cr + Cu + Mn + Ni + Pb + As	0,5	0,005-0,5	< 0,0115
Dioxins and furans (PCDD + PCDF)	0,1 × 10 ⁻⁶	0,01-0,1 × 10 ⁻⁶	0,0009 x 10 ⁻⁶

Ultrafine Particles < 0,1 µm [number of particles / cm³]

Domestic fireplace	81′000	
Diesel Boiler	67′000	
Timber Boiler (pallets)	52′000	
Incinerator "Milan Silla 2"	18	
Milan city atmosphere	32	



Some sales of the Italian implant existing or under construction

MILAN







Some sales of the Italian implant existing or under construction

BRESCIA



TURIN





Interiors











ODIE UK Ltd 37 Castleton Road - London, SE9 4BY Company number 07826174 VAT GB158875160