

**ZERO
WASTE
SCOTLAND**

Power for the people

Incineration



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zerowastescotland.org.uk

Overview

Incineration is a type of thermal treatment which produces energy from waste.

There are several different types of incineration including “moving-grate” and “fluidised-bed” and although there are technical differences they all share the same key features: feedstock (waste) is put through the process in the presence of oxygen which causes the material to burn, or incinerate. The feedstock must reach a minimum of 850°C for 2 minutes for the combustion process.

Incineration is an established and widely used technology in the UK which produces heat and electricity. It is not as “fussy” as other thermal treatments in terms of the feedstock required, however, it is generally most efficient on a larger scale.

What goes in?

Non-recyclable waste (general waste)

Some facilities will only accept materials collected by Councils, while others may also accept waste from waste management companies that collect from businesses.

Regulations mean that before being sent for incineration, general waste should be sorted to remove more recyclable material such as metals and dense plastics.

What happens?



Material arrives and is prepared for treatment (e.g. removal of incorrect materials and shredding).

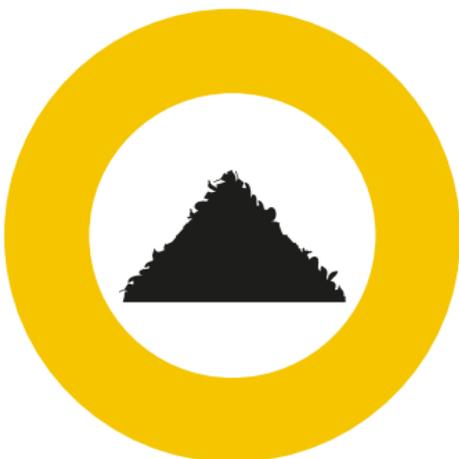
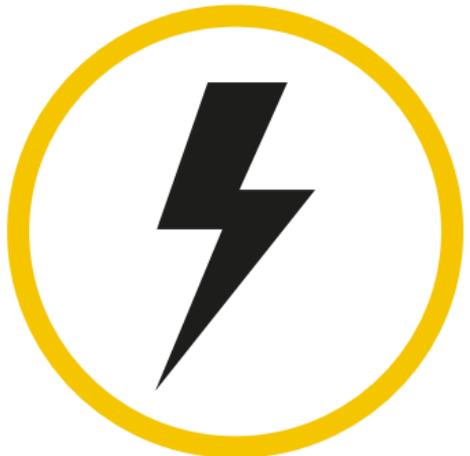
Material is put into a combustion chamber with oxygen and is burned at 850°C.



Burning produces gases which are cleaned using air pollution controls to reduce emissions.

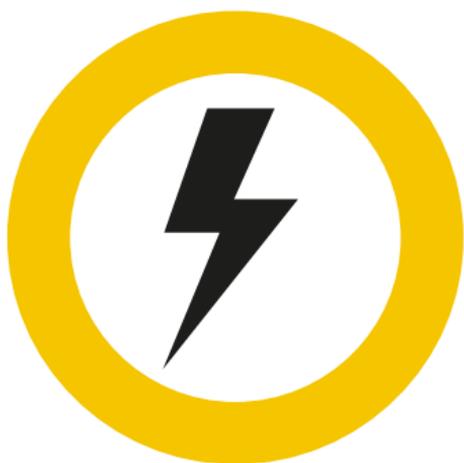


Cleaned gas is then burned to produce electricity and heat.



Residual ash materials are disposed of in landfill or, if possible, recycled.

What comes out?



Energy: Burning waste produces gas. The gas is captured and cleaned before being put through a turbine to produce electricity. This can be fed into the national grid to be used by homes and businesses.

Heat: Burning waste produces a great deal of heat which can be used to heat local homes as part of a district heating system. It can also be used to provide heat to local businesses or community facilities such as swimming pools.



When both the energy and heat produced by an incinerator are used, it is also known as a combined heat and power (CHP) facility. CHP facilities generate more value and create more benefits for local communities. SEPA requires that all new incinerators use both the energy and the heat.

Glossary

Air pollution controls (APC)

To reduce air pollution from thermal treatment plants, equipment is put in place to “clean” any air or gas emissions before they are released.

Combined heat and power (CHP)

Treatment facilities create heat and electricity, and CHP facilities use of both of these to supply electricity to the grid and directly heat homes and businesses.

Feedstock

Prepared waste materials which will go through treatment facilities.

Non-recyclable waste (general waste)

Often known as black bag waste or mixed waste, it is a mixture of discarded materials (rubbish) collected within the same bag or container and which is not recycled.

Preparation for treatment

The process of preparing a material for thermal or biological treatment (e.g. shredding or mixing) to make it more efficient.

Residual ash

The solid material left over after incineration.

Treatment

A type of process which reduces the quantity of input material either by using heat (thermal treatment) or a biological process. They also produce heat, electricity, fertilisers or other outputs.

Further information

Zero Waste Scotland (ZWS)

For more information on Zero Waste Scotland, its work and research, please visit: www.zerowastescotland.org.uk

For more information on waste facilities and how they are developed, please visit: www.zerowastescotland.org.uk/infrastructure

Scottish Environment Protection Agency (SEPA)

For information on waste regulation, licencing, data and more detailed technical information on facility types and the standards they are required to achieve, please visit:

www.sepa.org.uk

Recycle for Scotland

For more information on how to reduce, re-use and recycle, please visit: www.recycleforscotland.com

Videos

To watch videos explaining what different facilities do, please visit: www.recycleforscotland.com/facts-figures/facts-figures

Chartered Institution of Wastes Management (CIWM)

For more detailed and technical information on different facilities and on waste management issues in general, please visit:

www.ciwm.co.uk

Renewable Energy Association

For more information on thermal and biological treatment facilities which create energy from waste, please visit:

www.r-e-a.net/renewable-technologies

Environmental Services Association

For more information on waste management and the different types of facilities, please visit: www.esauk.org/



For more information about Zero Waste Scotland's terms and conditions, please visit www.zerowastescotland.org.uk/content/terms-conditions

If you have any questions please contact data@zerowastescotland.org.uk