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U.S. ENVIRONMENTAL PROTECTION AGENCY

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Combustion

To reduce waste volume, local governments or private operators can implement a controlled burning process called combustion or incineration. In addition to reducing volume, combustors, when properly equipped, can convert water into steam to fuel heating systems or generate electricity. Incineration facilities can also remove materials for recycling.

Over one-fifth of the U.S. municipal solid waste incinerators use refuse derived fuel (RDF). In contrast to mass burning—where the municipal solid waste is introduced "as is" into the combustion chamber—RDF facilities are equipped to recover recyclables (e.g., metals, cans, glass) first, then shred the combustible fraction into fluff for incineration.

A variety of pollution control technologies significantly reduce the gases emitted into the air, including:

- Scrubbers—devices that use a liquid spray to neutralize acid gases
- Filters—remove tiny ash particles

Burning waste at extremely high temperatures also destroys chemical compounds and disease-causing bacteria. Regular testing ensures that residual ash is non-hazardous before being landfilled. About ten percent of the total ash formed in the combustion process is used for beneficial use such as daily cover in landfills and road construction.

Related Topics

Combustion and Incineration Regulations: 40 CFR Part 60 (Subchapter C—Air Programs)

Combustion and incineration regulations are codified in 40 CFR Part 60, including emissions guidelines and compliance times for municipal waste combustors.

Guidance for the Sampling and Analysis of Municipal Waste Combustion Ash for the Toxicity Characteristic (PDF) (28 pp, 1.0 MB, About PDF)

Electricity from Municipal Solid Waste (MSW)

This EPA Web site explains how MSW can be directly combusted in waste-to-energy facilities to generate electricity. Because no new fuel sources are used other than the waste that would otherwise be sent to landfills, MSW is often considered a renewable power source.

Research on Municipal Waste Combustion (MWC) Pollutant Formation and Control Mechanisms

EPA's Air Pollution Technology Branch (part of EPA's National Risk Management Research Laboratory) conducts research on air pollutant emissions generated during the process of municipal solid waste combustion.

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