

Sewage Sludge Gasification and Power Generation System

Features

- Makes full use of the energy of sewage sludge by converting the sewage sludge into gas energy that fuels power generation facilities.
- Free of nitrous oxide, which is generated from conventional sludge incineration processing and has a warming coefficient 310 times as high as CO₂.
- Attained Japan's first continuous gasification for 2,000 hours as a result of the 2007 proof examination project of the New Energy and Industrial Technology Development Organization (NEDO).

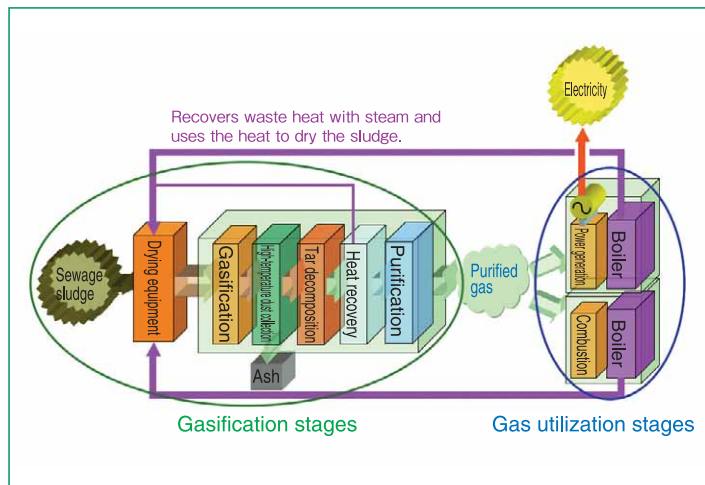
Overview

(Technical principles, actions, etc.)

Sewage sludge can be environment-friendly energy, the processing of which will not involve carbon dioxide CO₂ emissions as greenhouse gas. Sewage sludge has great energy potential, but it has not been used practically.

This system dries sewage sludge with a moisture content of 75% to 80% for gasification, extracts hydrogen and other flammable gas that contains carbon monoxide, provides power generation facilities with them, recover waste heat with steam generated at the time of power generation, and uses the heat of the steam as a heat source to dry the sludge. This system makes full use of the energy of sludge.

Furthermore, this system is free of nitrous oxide (N₂O), which is generated from conventional sludge incineration processing and has a warming coefficient 310 times as high as CO₂, thus greatly contributing to the reduction of environmental loads.



System flow of sewage sludge gasification and power generation

Introductory Track Record

■ Naka River Water Recycling Center of Saitama Prefecture Throughput: 15 tons/day

- * The proof examination facilities of the Naka River Water Recycling Center were constructed as part of research jointly made by the NEDO, TAKUMA, and Tokyo Gas under the NEDO's proof examination project of biomass energy usage.

(Proof examination period: 2004 to 2008)



Plant proofing sewage sludge gasification and power generation

Effects

- The primary energy consumption of this system is 22% lower than that of conventional incineration systems (at high temperatures with little generation of N₂O) and the quantity of CO₂ emissions of this system is approximately 50% lower.
- The introduced gasification technology is available for all types of biomass that have not been utilized so far. The gasified energy can be applied as fuel to replace fossil fuel for existing boilers and converted into liquid fuel for a variety of applications.