

Joint Research Concerning Biomass Methane Fermentation

Whole term

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(Purpose)

We implemented practical research concerning composite methane fermentation based on each biomass introduction planned value set by Suzu City last year (fiscal 2005). From the results of this research, (1) influences that fluctuations of each biomass introduction load have upon facilities and (2) problems concerning safety of dried sludge, have been made clear.

The purpose of this research is to make the above problems clear in order to smoothly proceed with the performance evaluation research of the Suzu City composite methane fermentation facilities which will be implemented from fiscal 2007.

(Results)

1. Survey of wastewater influent and biomass properties

- Since most of existing data on wastewater influent was obtained from a spot sample, we collected composite samples for 24 hours in this research and analyzed them. It was found that the values of SS, T-BOD and T-N were rather lower than those reported last year (the values actually achieved in fiscal 2004), and there was no influence upon design conditions.
- The recovery of raw materials when garbage is smashed and separated was about 90%, being the similar recovery described in the fiscal 2005 report as a whole, but talking of each individual sample, it was found that there were fluctuations in the recovery of raw materials such as bony parts of fish and remnants of *kamaboko*.
- We also analyzed the properties of five kinds of mixed sludges i.e. sewage sludge, waste sludge of agricultural communities, night soil and garbage. Although there are fluctuations in these sludges according to days of collection, it was found that the capability of the facilities under construction could cope with the fluctuations.

2. Survey of safety of dried sludge

- According to the report submitted in fiscal 2005, the content of heavy metal contained in dried sludge was lower than a regulated value, but was numerically high. However, we did not find this phenomenon in our survey, and found that this was due to the influence of the kind of source sludge we collected from another treatment plant.
- We confirmed that there was no hindrance in converting dried sludge into fertilizer.

3. Overall evaluation

- Since we examined wastewater influent in detail, we could obtain accurate water quality data.
- In the analysis of biomass properties, as a result of reviewing the facilities based on the results we obtained from the survey we did this time, we confirmed that biomass was within a range of fluctuations we could cope with the capability of the facilities, and there was no hindrance in the performance evaluation research by the facilities.
- We found that the recovery of raw materials fluctuated in bony parts and *kamaboko*.
- We confirmed that the content and liquation amount of heavy metals contained in dried sludge adequately satisfy regulated values, and the dried sludge could be safely converted into fertilizer.

(Schedule)

Construction of biomass fermentation facilities will begin in fiscal 2005, and we shall be able to start a performance evaluation test in the middle of fiscal 2007.

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Key words

Biomass, methane fermentation