

Study on the Development of Sewage Sludge Recycling Technology

Whole term

1993.7 ~ 1994.3

(Purpose)

Along with the development of sewerage systems, sewage sludge generation in the sewage treatment process has been increasing. The sludge has been disposed by landfill currently, but the securement of the disposal sites is getting more and more difficult. Therefore, in future, reduction of the sludge generation and acceleration of the recycling for the purpose of the effective utilization of the resources are still more required.

In Osaka, a resource recycling plan for Osaka regional sewerage system, 'MIRACLE PLAN' was formulated based on 21COSMOS plan. The plan aims to actively utilize the treated wastewater and sewage sludge as valuable resources. For sludge utilization, recycling as construction materials was chosen as one of the main topics and was examined through tests and experiments.

This study discussed sewage sludge recycling technologies, such as recycling as construction materials, in the case of Takatsuki sewage treatment plant of the regional sewerage system on the right bank of Yodo River.

(Results)

The results are as follows.

1. Based on the past records and literature, sewage sludge generation, the present situations of sewage sludge treatment and disposal and the outline of the Takatsuki plant were compiled.
2. Literature search was conducted on the effective utilization technologies of sewage sludge.

Currently, sewage sludge has been utilized mostly for the agricultural use. Recently, however, the number of treatment plants which implement melting treatment in addition to the incineration has been increasing, thus new uses of the melted slag as construction materials have started to be explored besides the incineration ash. Therefore, sludge recycling as construction materials is considered to be accelerated in the future.

3. Discussion on the sludge treatment process in the Takatsuki plant

On the occasion of the establishment of the sludge treatment facility, the plan was revised and the sludge treatment process and the arrangement of sludge treatment facility were modified. Meanwhile, sludge incineration process was discussed from the viewpoint of the sludge recycling. In the discussion, the incinerator and melting furnace were evaluated considering the local situations, as a result fluidized bed incinerator-ash melting process was judged appropriate through interviews and so on.

4. Future tasks

Regarding the utilization of the melted slag as construction materials, more concrete uses should be discussed.

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Keywords

Effective utilization of sewage sludge, sludge incineration process, incineration ash, melted slag