Research on the utilization of the combined wastewater and sludge treatment system		
Whole term	1993. 5 ~ 1994. 3	

(Purpose)

The activated sludge treatment system applied widely in Japan needs high management skills. Furthermore, a workforce for the management is hard to be acquired to be compatible with the future increase of sewerage development.

Therefore, easily maintainable wastewater treatment plants are necessary as the society moves towards the urbanization and globalization. People tended to think that sludge and wastewater treatments were independent from each other. However, both thickening and dewatering the sludge depend on the wastewater treatment system while the treated water quality depends on the sludge characteristics. Hence, a new wastewater treatment system in which both the wastewater and sludge treatment were combined, was developed. In the new system, the solid-liquid separation and biological treatment are combined, and the sludge treatment is included in the wastewater treatment system.

This system is composed of floatation with compressed aeration without additives, the biological aerated filter and sludge dewatering. A quick collection of sludge is achieved using a dissolved-air floatation tank with no additive, and then biological treatment in the biological aerated filter makes both thickening and dewatering of the sludge improve so that it is possible for direct sludge dehydration, and consequently, management is improved.

The technology on the utilization of this system has already been established by means of a pilot plant test, focusing on a design manual of the combined wastewater and sludge treatment system, with a minimized land usage and an economical maintenance.

(Results)

In this study, the design factor of the combined wastewater and sludge treatment system being composed of the dissolved-air floatation tank with no additive, the biological aerated filter and sludge dewatering, was established.

1) Contents of the manual

This manual contains; Chapter 1. Design manual, Chapter 2. Construction specifications and a supplement on the model design.

Chapter 1(design manual) explains the system outline, the process structure and the design factor, and matters to be attended for maintenance. Chapter 2 (construction specifications) describes the dissolved-air floatation tank with no additive, biological aerated filter, and the configuration of the sludge hydrator.

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