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Full-scale demonstration of improvement of sludge treatment performance

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ABSTRACT

High water content (73.2%) of dewatered sludge from the "D" water treatment plant (DWTP) rendered its disposal into landfill difficult, which initiated a study to find a solution to decrease its water content. This study involved the use of the thermal dehydrator, which is a filter press augmented by thermal process. A full-scale experiment has been conducted to evaluate the performance of the thermal dehydrator at DWTP since January 2006. The thermal dehydrator successfully reduced the water content of dewatered sludge (49.5%). The use of the thermal dehydrator was also a more economical option than that of the existing belt press. When the operating costs of these two types of equipment were compared, 142,744 won were necessary for the thermal dehydrator based on treatment of 1 ton of solid. On the other hand, 233,493 won was the cost of the existing belt press. The disadvantage of the thermal dehydrator was high energy consumption. Nonetheless, it reduced the amount of sludge disposed of at landfill. It also eliminated the use of polymer, which is essential for the operation of the belt press.

Keywords: Thermal dehydrator; Dewatered; Water content

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