〈論　文〉

好気ろ床ろ材に廃アルミニウム缶を用いた硝化液循環方式による有機物，窒素，リンの同時除去法

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概　要

嫌気ろ床槽と廃アルミニウム缶を充填した好気ろ床槽に硝化液循環を付加した室内実験装置を用いて，小型合併処理浄化槽に適用できる窒素，リンの同時除去方式を検討した。人工下水を原水に用い，滞留時間，負荷量，循環返送比を変化させて，連続処理実験を行った。BOD除去率は実験の全期間で98％を示し，COD除去率は循環返送により85～95％を示した。BOD容積負荷0.2kg/m³/日以下で滞留時間48～72時間，循環返送比3倍(以下nQと表わす)で約60％のT－N除去率であった。T－P除去は循環返送比の影響がなく，溶出Al濃度の影響を受けて，滞留時間72時間で80％の除去率を得た。Al凝集によるリン除去は第3，第4好気ろ床槽が主反応であり，汚泥発生量が増加した。生物相から滞留時間72時間，循環返送比2Qの全好気ろ床槽が好気性雰囲気と判定できた。

Simultaneous Removal of BOD, T-N and T-P Using a Contact Aerator Packed with Used Aluminium Cans in the Aeration Tanks by Circulated Return System

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Abstract

In order to examine the effect of used aluminium cans on the small type of domestic sewage treatment system, the simultaneous removal of BOD, T - N and T - P in the artificial sewage water was studied. The basal experiment regarding the contact aerator which had two anaerobic tanks and four aerobic tanks packed with used aluminium cans was carried out. Effects of the retention time, the BOD load, and the circulatory rate on each removal rate were tested.

The BOD removal rate showed 98% through one experimental period, and the COD removal rate showed 85 to 90% by the circulated return system. The T - N removal rate was higher when the circulated return system was employed, and showed about 60% under 0.2kg/m^3/day of the BOD load, 3Q of the circulatory rate, and both 48 and 72 hours of the retention time. The T - P removal was affected by the solved aluminium

concentration in aerobic tanks and the retention time. The removal rate of T - P in 72 hours of the retention time was 80%. Judging from the biological phase, four aerobic tanks were aerobic under 72 hours of the retention time and 2Q of the circulatory rate.

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