



## Effect of sludge reduction in oxic-settling-anaerobic (OSA) systems with different anaerobic hydraulic retention times (HRTs)

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### ABSTRACT

The performance of an oxic-settling-anaerobic (OSA) system in terms of sludge reduction was investigated for various anaerobic hydraulic retention times (HRTs) (7 d, 5 d, 3 d, 1 d, 12 h, and 6 h) for a sequencing batch reactor (SBR)-OSA system. Compared to the traditional SBR system, the rates of sludge reduction in the 7d, 5d-1, 5d-2, 3d, and 1d OSA systems were observed to be 66.6, 57.7, 52.5, 50.0, and 48.5%, respectively. In terms of the apparent yield and actual yield of sludge, the OSA systems with longer HRTs exhibited lower sludge yields and better sludge reduction performance. The systems with an HRT > 1 d achieved a considerable increase in sludge reduction, whereas those with an HRT < 1 d did not. The anaerobic HRT was observed to be an important factor in determining the sludge reduction of OSA systems.

*Keywords:* Anaerobic; Hydraulic retention time (HRT); Oxic-settling-anaerobic (OSA) system; Sludge reduction; Sewage treatment

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