Case studies of microbubbles in wastewater treatment

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\textbf{A B S T R A C T}

In this study, a physical separation method using a flotation system employing microbubbles was designed and tested as an alternative to conventional dissolved air flotation (DAF) systems. The proposed system is an environmentally friendly microbubble treatment using air, ozone, and CO\textsubscript{2} gases and requiring virtually no chemicals. Three case studies have been investigated in this paper which verify the efficacy of microbubbles in treating wastewater, namely, (i) treatment of oily wastewater derived from cleaning the hull of a tanker ship, (ii) treatment of hotel laundry water, and (iii) treatment of fish pond water. After microbubble treatment, the treated water was determined to be suitable for recycling or discharge to the environment. The test results show that both air and ozone microbubble in wastewater treatments achieved large reductions in TSS, BOD and COD in the tested samples.

\textbf{Keywords:} Micro air and ozone bubbles; Waste water treatment; Agglomeration; Microbubbles

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