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Effects of sequence dosing on floc properties during coagulation of kaolin- and AOM-containing water

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This study was to evaluate the effect of dosing sequence on coagulation mechanism and coagulated floc properties with AOM containing water. Two water samples were prepared, one with kaolin only and the other with the addition of AOM. To simulate the real surface water, *Microcystis aeruginosa* was chosen and cultivated to obtain AOM for this study. The commonly used coagulant PACl and FeCl_3 was applied for different dosing modes, including single dosing PACl, FeCl_3 and sequence dosing PACl - FeCl_3 (P-F), FeCl_3 - PACl (F-P). During the rapid and slow mixing, FlocCAM was used to monitor the floc formation dynamics and its properties. For kaolin water, results show that single dosing with FeCl_3 could not only performed the fastest growth speed and the best structural properties of the flocs but also resulted in the highest turbidity removal. Dual dosing showed better floc formation properties than those produced by single dosing when AOM existed in the water. The finding of this study is that sequence dosing F-P results in having the highest DOC and SUVA_{254} removal at 22.5% and 42.3%, respectively. Moreover, the removal of EEM components revealed similar trend that the aromatic protein- and soluble microbial product-like substances could be effectively removed by sequence dosing F-P.

Biography

Ming-Han Tsai is pursuing his Master's degree from National Chiao Tung University of Taiwan. His research interest is about coagulation process in water treatment and removing N and P by AO system for wastewater treatment. Recently, he focuses on the coagulation of different dosing modes especially for AOM containing water.

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