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A Comparative Study of Floc And Sludge of Leachate under Different Types of Coagulants

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Abstract. This study compared the floc and sludge formed during the coagulation of leachate by different types of coagulants. The coagulants tested in this study were Ferric chloride (FC), pre-hydrolyzed iron (PHI), dual coagulant (PHI+TF(tapioca flour)), and composite coagulant (pre mix of PHI and TF (PHITF)). The floc and sludge were characterized by measuring the sludge volume index (SVI), sludge velocity (SV), and floc size. Results showed that the hierarchy for SVI, SV, and floc size were FC>PHI>PHI+TF>PHITF, PHITF>PHI+TF>PHI>FC, and PHI+TF>PHITF>PHI>FC, respectively. PHITF demonstrated the lowest SVI and the shortest sludge settling time among the tested coagulants. PHI+TF produced the largest floc size. The addition of TF in PHI as a composite and dual coagulant significantly improved the floc and sludge characteristics. PHITF improved the floc and sludge formation of partially stabilized leachate.

Keywords. *Floc, Sludge, Coagulation, Flocculation, Leachate*

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