

The Effects of Coagulation Process for the reuse of Gwangju Sewage Effluent

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Water quality in Gwangju sewage effluent was investigated for water reuse during the period of Jan 2003 to June 2004. Alum and poly aluminium chloride (PACl) as coagulants were used to reduce color, turbidity, total phosphorus (TP) and total organic carbon (TOC) in sewage effluents. Monthly mean values of BOD, SS, turbidity, total phosphorus and color in 2003 were 4.1 mg/L, 2.9 mg/L, 0.9 NTU, 1.3 mg/L, and 24.8 unit in sewage effluent, respectively. Jar-test was executed to investigate the removal effects of color, turbidity and TP in the effluent under the coagulation condition of 5 minute fast mixing, 15 minute slow mixing and 1 hr precipitation. Alum with 8% Al₂O₃ content showed optimum removal rate of 65 % for turbidity and 97 % for dissolved (D) TP with 100 mg/L dosage. However the removal of dissolved color (DC) increased in proportion to the coagulant dosage reaching up to 300 mg/L. PACl with 10% Al₂O₃ content showed somewhat same tendency in the removal of DC and DTP, except for turbidity. The optimum removal range was widely distributed from 80 mg/L to 220 mg/L when PACl was used as coagulant. This result will be applied for setting optimum operating conditions for Coagulation/Membrane hybrid system.