

Coagulation/adsorption combined treatment of slaughterhouse wastewater

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ABSTRACT

This study focused on the treatment of slaughterhouse wastewater characterized as having exceptionally high BOD, COD and TSS contents. A combined treatment system of coagulation and adsorption onto activated carbon was applied for the effluent treatment. Different coagulants, including alum, lime, ferrous sulfate, and ferric chloride were used individually and in combination. A jar test method was applied to determine the optimal dose of these coagulants. The sludge formation and COD measurements were made in each treatment type. Increasing dosages of coagulants increased the sludge formation and COD removal. Volume of sludge was found to be an indicator of maximum removal of COD. Alum was proved to be the best coagulant in removing COD up to 92%. Maximum sludge volume (400 ml/L) was also observed with alum. More than 90% removal efficiency in pollution load was observed at the set optimal conditions with coagulation process. A combination of coagulation and adsorption processes made negligible improvement in the removal efficiency of the system and removed pollution load up to 96%.

Keywords: Slaughterhouse wastewater; Coagulation; Sludge; COD removal; Adsorption

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