

A Combination of Filtration and Coagulation Processes for Tannery Effluent Treatment

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Abstract : This study focused on effluents characterization and treatment process to reduce of toxicity from tannery effluents. Tanning industry is one of the oldest industries in the world. It is typically characterized as pollutants generated industries which produce wide varieties of high strength toxic chemicals. The study was conducted during the year 2008 to 2009 and the tannery effluents were collected three times in a year from the outlet of some selected leather industries located in Hagaribagh industrial zone Dhaka, Bangladesh. The analysis results of the raw effluents reveal that the effluents were yellowish-brown color, having basic pH, very high value of BOD₅, COD, TDS, TSS, TS, and high concentrations of Cr, Na, SO₄²⁻, Cl⁻ and other organic and inorganic constituents. The tannery effluents were treated with various doses of FeCl₃ after settling and a subsequent filtration through sand-stone. The study observed that coagulant (FeCl₃) 150 mg/L dose around neutral pH showed the best removal efficiency for major physico-chemical parameters. The analysis results of illustrate that the most of the physical and chemical parameters were found well below the prescribed permissible limits for effluent discharged. The study suggests that tannery effluents could be treated by a combined process consisting of settling, filtering and coagulating with FeCl₃.

Keywords : characterization, effluent, tannery, treatment

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