عنوان مقاله:

Application of Dissolved Air Flotation Process for Industrial Sludge Thickening: A Laboratory-scale Study

محل انتشار:

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خلاصه مقاله:

Aims: Increasing population density in cities has led to an increase in industrial and municipal wastewater sludge generation volume. Dissolved air flotation (DAF) can widely be used for water and wastewater treatment. The aim of our study is to evaluate some DAF design parameters on biological sludge thickening which generated from an industrial wastewater treatment plant. Materials and Methods: This experimental research had been carried out as a laboratory-scale study on DAF process to thickening of the biological sludge. The required amount of sludge was taken once from the Amikabir industrial town wastewater treatment plant in Kashan, Iran. After determination of optimal recycling rate, pH, and coagulant dose, effects of pressure (3, 5, and 7 atm), flotation time (5 and 10 min), and coagulant addition were evaluated on DAF process efficiency. Results: According to this investigation results, the optimal pH and dose of coagulant were obtained 7.5 and 200 mg/L, respectively. Maximum process efficiency for the reduction of total dissolved solids (TDSs), total solids (TSs), and turbidity parameters was 61.01%, 84.02%, and 97%, respectively. Furthermore, the results showed that in contrast to time, coagulant addition and pressure have significant effect on DAF process. Conclusion: DAF process had suitable thickening efficiency to removal of TDS, TS, and turbidity on biological activated sludge.

کلمات کلیدی:

Flotation, industrial wastewater treatment, sludge disposal, thickening