Evaluation Removal Oil and Grease from Steel Mill Wastewater by DAF

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Abstract:

Background and objective: Oil and grease causes damages for aquatic organisms, soil ecosystem, and mutagenic and carcinogenic for human. The aim of this research was to study the reduction of pollution of oil and grease of steel mill wastewater with Air Flotation system.

Materials and Method: At first phase of this examination the sampling performed of raw wastewater for determine amount of oil and grease, COD, TS, TDS, TSS, Turbidity and Alkalinity. The second phase flotation with dispersed air performed at pilot vessel and the second sampling performed for determination of removal efficiency of oil and grease in 3 different concentration and 4 different retention time and measured for other parameters in best concentration and retention time.

Results: The retention time were selected 30, 45, 60 and 90 min and concentrations were 591 mg/l, 386 mg/l and 277 mg/l. removal efficiency for parameters of oil and grease, COD, TS, TDS, TSS, Turbidity, Alkalinity, obtained %48, %46, %37, %36, %82, %89, %6.

Conclusion: This study showed with increases of retention time from 30minute to 90minute removal efficiency for all of parameters gently increased but between 60 and 90 minute retention time removal efficiency was almost stable. Removal efficiency in high concentration of oil and grease(591mg/l) was more than removal efficiency in low concentration of oil and grease (277mg/l).

Keyword: Air flotation, Oil and grease, Wastewater, Steel factory