Abstract

The fish-oil refining industry is responsible for massive production of highly polluted effluents. High organic matter, sulphate content, fatty acids & oil, suspended solids among others, are the main effluent physico-chemical characteristics. The goal of this work is to analyze the processes in a fish-oil refining industry. The evaluation focus is to improve the process efficiency taking into account the pollution prevention option. Soft clean production alternatives were considered. Also, different effluent technology was evaluated as hard clean production alternatives for improving the environmental behavior of this industry. Cooling flow recirculation and valves changing where filtration and adequate clay waste management obtained at an intermediate level appeared, are the main proposals as soft clean production. To improve the quality of the final effluent, a specific technology treatment as hard clean production alternatives was proposed. An effluent technology in three consecutive stages was proposed as the best option. A settler as a pre-treatment was suggested for removing solid and fatty compounds. As a second stage, a Dissolved Air Flotation (DAF) equipment was proposed to remove the residual fatty acid and oil. In that case, the operation should consider the addition of FeCl3 and/or polymeric compounds used as flocculants.

Keywords

Effluent treatments, fish-oil refining industry, clean production.