

عنوان مقاله:

The Efficiency of Electrocoagulation and Electroflotation Processes for Removal of Polyvinyl Acetate From Synthetic Effluent

محل انتشار:

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تعداد صفحات اصل مقاله: 7

نویسندگان:

Zeinab Atashzaban
Abdolmotaleb Seidmohammadi
Davood Nematollahi
Ghasem Azarian
Omid Heidary Shayesteh
Ali Reza Rahman

خلاصه مقاله:

Polyvinyl acetate (PVAc) is a type of thermoplastic resin generated by a polymerization of vinyl acetate. Effluent of this polymer is highly rich with chemical oxygen demand (COD) and total solids (TS). Due to lack of studies on the above problem, the current study aimed at obtaining a sufficient method for the effluent pre-treatment. In fact, the study discussed PVAc effluent treatment by electrocoagulation (EC) and electroflotation processes. The study considered the effect of various operating parameters such as pH and current density, initial concentration of pollutant, inter-electrode distance, electrolysis times, and types of electrode materials (iron and aluminum); COD and TS removal efficiency and optimal values of operational parameters were calculated. In the study, COD and TS reduction rates in the optimized conditions in batch flow reactor were ۸۳% and ۷۸%, and ۸۰% and ۷۲% for Fe and Al electrodes, respectively. Optimized conditions were taken as ۲۴ mA cm^{-۲}, ۲۰ g/L PVAc, and neutral pH in ۲۰ minutes for Al-Al electrodes and ۱۵ minutes for Fe-Fe electrodes, ۱ cm distance between electrodes with parallel-type monopole of connection modes. According to the results, electrochemical process with batch flow tends to be a suitable pre-treatment process that is inexpensive, easily operated, and highly sufficient for effluent treatment, which contains polyvinyl acetate.

کلمات کلیدی:

لینک ثابت مقاله در پایگاه سیویلیکا:

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