عنوان مقاله:

Optimization of brewery wastewater with pHchanges in electrocoagulation system

محل انتشار:

نهمین کنگره سالانه بین المللی عمران، معماری و توسعه شهری (سال: 1402)

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خلاصه مقاله:

Brewery wastewater is one of the most polluted industrial wastewaters in the world. In this study, theeffect of pH and retention time on the removal of TSS, BOD and COD from brewery wastewater byelectrocoagulation with iron and aluminum electrodes in acidic and alkaline conditions has beeninvestigated. For this purpose, experiments have been performed with controlled initial pH values inthe range of ۴-۱۰ and retention time of ۱۵-۴۵ minutes. The process was a batch that was performedwith ۱۰۰۰ mL of wastewater in EC cell. The electrodes is used up in the EC process with a dimensionof ۵.۳ × ۱۰ × ۰.۱ cm, respectively. Also, three types of Fe-Fe, Fe-Al and Al-Al electrodes were used inthe laboratory. The results showed that the optimal removal efficiency took place at a retention time of۴۵ minutes and a pH of ۴.۳.The amount of TSS, BOD, and COD decreased from ۲۵۴۰, ۲۸۷۰, and۱۲۴۰۰ mg/L to ۵۲۶, ۶۰۸, and ۲۶۶۶ mg/L, respectively, which had ۷۹.۳, ۷۸.۵, and ۷۸.۸% efficiency,respectively. The highest efficiency was observed in Al-Al electrodes. COD removal efficiency of۸۲.۶%, BOD ۸۰.۵% and TSS ۸۱.۱% were observed in these electrodes. PH changes and choosing theright electrode for industrial wastewater treatment are very important.

کلمات کلیدی:

brewery wastewater, electrocoagulation, pH impact, retention time

لینک ثابت مقاله در پایگاه سیویلیکا: