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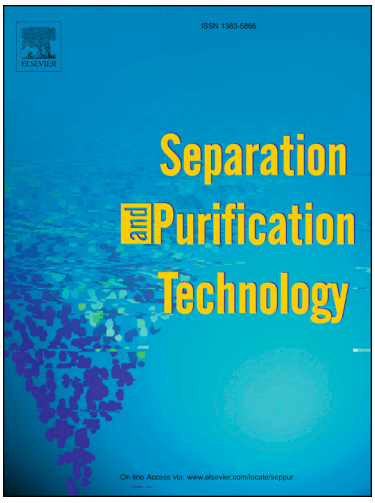

High efficient decolorization of Reactive Red 120 azo dye over reusable Fe-ZSM-5 nanocatalyst in Electro-Fenton reaction

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High efficient decolorization of Reactive Red 120 azo dye over reusable Fe-ZSM-5 nanocatalyst in Electro-Fenton reaction

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Abstract

We report development of ZSM-5 nanocatalyst including Fe promoter for decolorization of Reactive Red 120 (RR120) azo dye in a heterogeneous electro-Fenton reaction. The nanocatalysts were characterized by XRD, FT-IR, FE-SEM, N_2 adsorption-desorption and NH_3-TPD techniques. The influence of different parameters (Fe percentage, nanocatalyst loading and pH level) on the decolorization efficiency are studied. The results show that the optimum operational conditions are 1% Fe impregnation, 0.1 g nanocatalyst loading and pH 3.0 which result in the highest RR120 decolorization efficiency (ca. 98%). A pseudo-first order kinetic model fits the experimental data with the high correlation

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