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Preparation of Heterogeneous Ferrite Catalysts and Their Application for Fenton-Like Oxidation of Radioactive Organic Wastewater

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Abstract : Fenton oxidation technology is the general strategy for the treatment of organic compounds-contained wastewater. However, a considerable amount of ferric sludge was produced during the Fenton process as secondary wastes, which were needed to be further removed from the effluent and treated. In this study, heterogeneous catalysts based on ferrite oxide (Cu-Fe-Ce-O) were synthesized and characterized, and their application for Fenton-like oxidation of simulated and actual radioactive organic wastewater was investigated. The results of TOC decomposition efficiency around 54% ~ 99% were obtained when the catalyst loading, H₂O₂ loading, pH, temperature, and reaction time were controlled. In this case, no secondary wastes formed and the given catalysts were able to be separated by magnetic devices and reused again.

Keywords : fenton, oxidation, heterogeneous catalyst, wastewater
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