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Highly active based iron-carbonaceous cathodes for heterogeneous electro-Fenton process: application to degradation of parabens

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Highlights

- Four Fe-carbonaceous cathodes were viable alternatives for heterogeneous EF
- Activated graphite felt with H₂SO₄ (AGF-1) proved highest mineralisation and degradation
- Maximum degradation rate (0.143 min⁻¹) at optimal conditions (100 mA and pH 3)
- Reusability of cathode showed high structural stability and catalytic activity
- Intermediate products were identified and degradation key steps proposed

Abstract

Personal care products are known as endocrine-disrupting compounds and their degradation is a matter of concern to avoid their release into the environment. For this reason, the main objective of this study is to develop an effective advanced oxidation process able to degrade a paraben as methyl paraben (MePa). Initially, the efficiency of two electrodes, Graphite felt (GF) and Ruthenium (Ru), was compared on the degradation of MePa by anodic oxidation (AO) and electro-Fenton (EF). Near complete degradation

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