Suplementary materials

Electrodegradation of Acid Mixture Dye through the Employment of Cu/Fe Macro-Corrosion Galvanic Cell in Na2SO4 Synthetic Wastewater

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Abstract: Traditionally used wastewater purification processes are based on a combination of physical, chemical and biological methods. On the other hand, typical electrochemical techniques for the removal of pollutants require large amounts of electrical energy. In this communication, we report on the process of wastewater purification, carried-out through continuous anodic dissolution of iron anode for aerated Cu/Fe galvanic cell in synthetic Na_2SO_4 wastewater solution. Electrochemical experiments were conducted by means of a laboratory size electrolyzer, where electrocoagulation along with electrooxidation phenomena were examined for wastewater containing Acid Mixture dye. The above was visualized through the employment of electrochemical (cyclic voltammetry and ac. impedance spectroscopy techniques) along with instrumental spectroscopy analyses.

Keywords: Electrocoagulation and Electro-oxidation; Fe Sacrificial Anode; Galvanic Cell; Anodic Dissolution; Wastewater Treatment; Acid Mixture

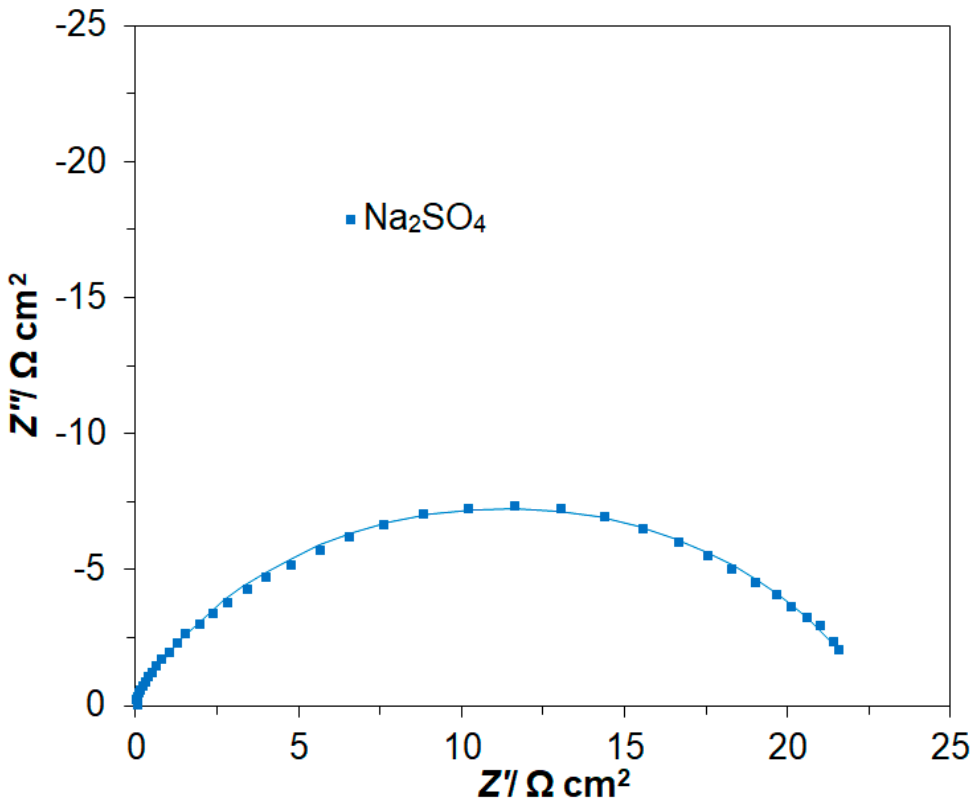

Figure S1. The recorded complex plane Nyquist impedance plots for low carbon steel electrode in Na_2SO_4 solution, derived for the potential value of -390 vs. SCE. The solid lines correspond to the representation of the data according to the equivalent circuit model presented in Figure 5 of the main manuscript.

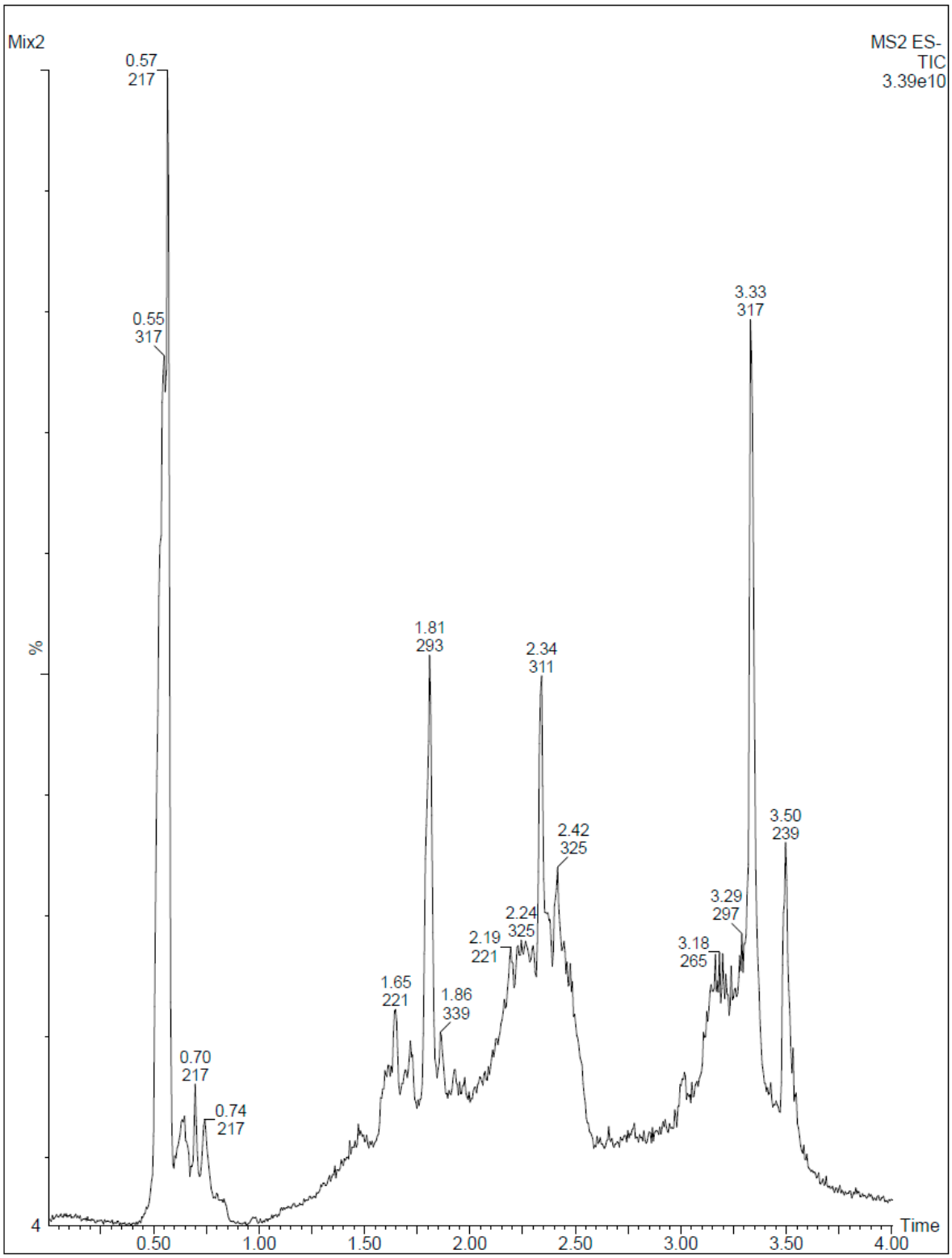

Figure S2. Representative UPLC-MS/MS scan chromatogram for AM after 60 min of continuous electrolysis.