

An attempt of homogeneous Fe(IV) electron mediator generation and its application to air pollutants removal at electroscrubber

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High current density needs in generation of electron mediator that induces water splitting intern reduces the current efficiency. In the present work, Fe(III)O⁻²⁻ used to generate Fe(IV)O₄²⁻ in highly NaOH medium at anodic half-cell at less current density and attempted to air pollutant removal. First, effect of membrane was analysed during electrolytic generation of Fe(IV) at anodic half-cell. The oxidation efficiency was derived using potentiometric titration method. Almost 80% of Fe(IV) was achieved while use of Nafion115 membrane at the current density of 10 mAcm⁻². A model air pollutant was checked at electroscrubber that was monitored by online FTIR gas analyser.

Key words: MEO, Fe(IV) generation, less current density, air pollutant removal.