

## Mediated electrochemical oxidation of organic by mixed redox couple in the batch scale system

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The mediated electrochemical oxidation (MEO) process using combined cerium(IV) and silver (II) in nitric acid as the oxidizing medium was employed for the mineralization of organic pollutant continuous feeding modes in the batch scale system. In the MEO a metal ion capable of exhibiting redox behavior is oxidized from lower oxidation state to higher oxidation state by an electrochemical cell and subsequently used as an oxidant for mineralizing the toxic organics into CO<sub>2</sub> and water. The net result is the consumption of electrical energy for organic mineralization. Therefore, the current efficiency is an important factor and maximizing the current efficiency is one of the ways of reducing the running cost of the MEO process. In this study Ce(IV) Mediated Electrochemical oxidation of organic was carried out with silver ion catalyst. The current efficiency and energy consumption for the electro-oxidation of cerium(III) in nitric acid was found to be increased by the addition of silver ions. The mixed mediator system was studied different parameter for optimization of the process. The destruction efficiency and energy consumption was calculated based on the CO<sub>2</sub> evolution.