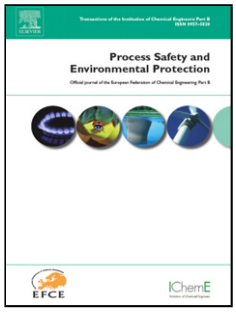

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EVALUATION AND DISPOSABILITY STUDY OF ACTUAL TEXTILE WASTEWATER TREATMENT BY ELECTRO-OXIDATION METHOD USING Ti/RuO_2 ANODE

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HIGHLIGHTS

- Ti/RuO_2 electrode was used for treatment of actual textile wastewater by electro-oxidation.
- Effect of pH, current and electrolysis time on COD and color removal and energy consumed were studied.
- COD and color removal were found to be 80.0% and 97.25%, respectively.
- To treat 1 m^3 of textile effluent by reducing the COD from 0.544 kg/m^3 to 0.108 kg/m^3 is 3.66 $.
- Chlorinated organic compounds were detected in treated wastewater.

ABSTRACT

Electro-oxidation (EO) treatment performance for actual textile wastewater using RuO_2 coated Ti electrode (Ti/RuO_2) was studied, and effects of EO process parameters like pH, current (i) and electrolysis time (t) on percentage chemical oxygen demand removal (S_1), percentage color removal (S_2) and energy consumed (S_3) were investigated. Box Behnken Design was used for experimental design and data analysis. Furthermore, pollutants oxidation method involved, direct and/or indirect oxidation, was also investigated. Safe disposability of treated wastewater was examined through spectrophotometric and GC-MS analysis by identifying eliminated organic compounds and transformation products in treated effluent. Moreover, operating cost (electrode and electricity cost) analysis was also performed to see the economic feasibility of the