COD and Color Removal from Landfill Leachate by photo-electro-Fenton Process

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This study investigated the effects of operational parameters such as pH (2.5-5.0), current density (10-50 A/m²), H₂O₂ concentration (250-1500 mg/L) and distance between electrodes (1.0-1.5 cm) on COD and color removal from the leachate by the photo-electro-Fenton method. Under determined optimum experimental conditions (pH: 3, current density: 10 A/m², H₂O₂: 1000 mg/L, UV lamp: 16W, stirring rate: 250 rpm, distance between electrodes: 1.0 cm), maximum 83.84% COD removal and 84.46% color removal from leachate were achieved with an electrical energy consumption of 11.02 and 5.51 kWh/m³, respectively. Maximum removal efficiencies for COD and color were reached after 90 and 45 minutes of treatment, respectively.

Keywords: COD, color, removal, photo-electro-Fenton, leachate, cost.

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