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Study on the treatment of photovoltaic wastewater using electrocoagulation: Fluoride removal with aluminium electrodes—Characteristics of products

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ABSTRACT:

In this work, treatment of synthetic fluoride-containing solutions by electrocoagulation method using aluminium electrodes has been studied. Electrocoagulation was investigated for applied potential (10-30 V), electrolysis time and supporting electrolyte (NaCl) concentration (0-100 mg/L). The results showed that with increasing applied potential and electrolysis time, the Al3+ dosage increases, and thereby favouring the fluoride ions removal. It was also observed that defluoridation is dependant on the concentration of supporting electrolyte. Finally, X-ray diffraction, scanning electron microscopy, energy dispersive spectroscopy of X-rays and Fourier transform infrared spectroscopy were used to characterize the solid products formed by aluminium electrodes during the EC process.