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Electrocoagulation and crossflow microfiltration hybrid system: fouling investigation

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ABSTRACT

The fouling study of crossflow microfiltration (MF) was comparatively studied with feedwater containing kaolin suspension with and without electrocoagulation (EC) pre-treatment. An acrylonitrile butadiene styrene (ABS) MF membrane of pore size 0.4 μm was used in this study. The experiments were carried out at three different concentration of kaolin (100, 400 and 800 mg/l) and with three different crossflow velocities of 0.5, 1 and 1.5 l/min. When the feedwater was pre-treated by EC, the fouling was found to follow standard law of filtration. Besides the standard filtration law, the fouling mechanism also followed the classical cake filtration model due to formation of a secondary membrane.

Keywords: Microfiltration; Crossflow; Fouling mechanism; Filtration laws; Electrocoagulation

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