



Elaboration and characterization of ceramic microfiltration membranes from natural zeolite: application to the treatment of cuttlefish effluents

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Received 18 May 2017; Accepted 19 August 2017

ABSTRACT

Ceramic microfiltration membranes have been successfully elaborated on tubular microporous supports by slip casting process using natural Turkish zeolite mineral as the starting material. The main steps of support preparation and microfiltration layer deposition have been detailed. The tubular zeolite support sintered at 900°C for 3 h has exhibited high properties in terms of mechanical resistance, porosity and chemical stability. Scanning electron microscopy analysis has shown smooth surfaces and cracks-free membranes sintered at 850°C during 3 h. The water permeability values of the support and the membrane have been 1,218 and 534 L/h m² bar, respectively. The application of the microfiltration membrane to the treatment of cuttlefish effluents has confirmed good performances in terms of permeate flux and efficiency (decrease of turbidity, retention of chemical oxygen demand and total color removal).

Keywords: Membranes; Support; Separation; Filtration; Zeolite; Microstructure

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