

USE OF FLAT CERAMIC MEMBRANE MADE FROM MOROCCAN GEOMATERIALS TO TREAT TEXTILE EFFLUENTS

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Abstract:

There is much current interest in the application of membranes in separation procedures because of their application in the treatment of big amounts of wastewaters, and in places where the available space is small. In the last years, the volume of research and development of ceramic membranes has undergone a big advance, because of their applications in filtration environments where polymeric membranes suffer changes in their structure. These are separations in chemically aggressive environments and at high temperatures, in applications requiring a long life-time, a good mechanical strength and cost-effective production. . In that sense, as geomaterials are abundant in a country like Morocco, they can be used as alternative to classic ceramic membranes.

The aim of this work is the use of ceramic membrane substrate made from Moroccan geomaterials (Clay from Fès and Pozzolan from Tizi Said) for treatment of textile effluents (washing water of Jean) applying microfiltration process at low pressure. Flat membranes of 4cm of diameter and few millimeters in thickness; have been obtained by uniaxial pressing method followed by thermal treatment at 950 °C. Porosity, average pore diameter and water permeability were respectively: for Clay 30.8%, 1.5µm and 224 l/m².h.bar, for Pozzolan 27.6%, 2.36µm and 843l/m².h.bar. This work has also showed that the tested membranes can eliminate up to 90% of the turbidity of the studied wastewaters.

Key words: *Moroccan clay, Pozzolan, ceramic membrane, Geo-materials, textile effluent.*

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