



Porous ceramic membranes prepared from kaolin

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ABSTRACT

The prepared asymmetric kaolin microfiltration membranes have been investigated. The objectives of this work were to prepare the ceramic supports and membranes from clays. In this way, kaolin is one of the most popular starting materials for aluminosilicate-based ceramics, due to its common occurrence and good forming. Consequently, the usual starting materials (alumina, silica, cordierite, mullite, etc.) may be replaced by a local kaolin as raw material in order to reduce the cost of supports fabrication. These raw materials have been dictated by their natural abundance (low price) and their beneficial properties. The powders mixed with certain organic additives have been extruded to fabricate a porous tubular configuration with highly uniform porous structures. Subsequently, the influence of the sintering temperature on the total porosity, average pore size, pore size distribution and strength of supports was investigated. It was found that the average pore size of the membrane and its thickness were about 0.6 μm and 21 μm , respectively. Moreover, this membrane was tested with distilled water. The rejection for the membrane depends, in fact, on the nature and on the conformation of the polymer used for the filtration tests. The results obtained enable to conclude that a clay membrane may be used for tangential microfiltration.

Keywords: Supports; Membranes; Porosity; Microfiltration

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