

Abstract

The use of ceramic membranes has many advantages, such as high thermal and chemical stability, pressure resistance, long lifetime, good resistance to fouling, and the ease of cleaning. Up to now, the production of industrial membrane supports uses a limited choice of materials. As a consequence, the price of ceramic membranes is high and a significant effort was provided in this last years in the membrane technology field in order to find new porous ceramic materials with clays and kaolins. These materials are in abundance and need lower sintering temperatures than metal oxide materials. In this work, the tubular supports for membranes filtration was manufactured from kaolin and lime extracted from limestone.

The influence of the relative low sintering temperature ranging from 800 to 1,100°C on the porosity, the average pore size (APS), a pore size distribution, and a strength of supports have been investigated. Additionally, the APS and the porosity values were about 8 μm and 47% for supports sintered at 1,000°C. Besides this, three-point flexural strength values were ranged from 30 to 53 MPa for samples sintered at sintering temperatures situated between 1,000 and 1,100°C, respectively