The objective of this study was to prepare low-cost macroporous ceramic membranes using natural kaolin and natural lignite, as porogen agent, both from Tunisia. The characteristics of this membrane have been defined to be used in filtration processes and as a support for multilayer ceramic membranes. This study includes the characterization of the raw materials in order to define optimal processing parameters to obtain the membranes. A study of the effect of lignite content has been carried out. Porosity, density and mechanical strength were the considered parameters to be optimized. A lignite percentage of 20% and a sintering temperature of 1,050˚C were chosen. Obtained membranes show good porosity above 43% but with a slightly low mechanical strength that does not exceed 20 MPa. These membranes can be considered as efficient regarding the results shown in the gas permeation tests.

Keywords: Kaolin; Membrane; Processing; Permeability