



NANOCOMPOSITE MEMBRANES OF POLYETHERIMIDE/NATIONAL CLAY FOR GAS SEPARATION

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The interest in the nanotechnology development in the last decade allows the increase in the nanocomposite area due to the special properties presented by these materials. In the nanocomposite the nanometric particles are dispersed in the polymer matrix. The polymer nanocomposites use fillers to increase the polymer properties and use small content of silicates (1-5% w/w) and present, theoretically, superior properties when compared with conventional composites. These nanocomposites can be use to prepare membranes. The membrane separation process, although is recently, is increasing in applications such as purification, fractioning and concentration of substances in several industries. The membranes to gas separation present specific advantages when compared with conventional separation process (such as, cryogenic distillation and adsorption). The study of gas separation by polymer membrane has been expanded with a great amount of experimental data from polymers related to permeability and selectivity of gas mixtures (such as, O₂/N₂, H₂/CH₄, H₂/N₂, CO₂/CH₄). The aim of this work is to prepare flat membrane by evaporation-precipitation method. These membranes were obtained from polyetherimide (PEI) with bentonite clay from Paraiba/Brazil and applied to gas separation process. The results present in this study show good expectation.