Preparation And Application Of Cation Exchange Polyaniline Membrane

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During the last 50 years, ion exchange membranes have evolved from a laboratory tool to industrial products with significant technical and commercial impact. A number of studies were reported on the modification of conducting polymers, especially Polyaniline (PANI), for ion-exchange process. PANIs and its derivatives have great importance in technology among the conducting polymers because of their electrical and optical properties, and therefore widely used in various fields. Due to the ion exchange and redox properties, the polyaniline is frequently used in separation science as membranes, supported films, surface layers for application ranging from gas separation, electrodialysis, and donnan dialysis. In consequence of chemical oxidation of aniline by polymerization in a membrane matrix, modified and composite membranes with different properties can be prepared.

In this study PANI was synthesized by chemical polymerization and solved in methanol. Solution used for preparing modified membrane using microporous polyvinylidene fluoride (PVDF). The PANI composite membrane was extensively characterized using scanning electron microscopy (SEM), atomic force microscopy (AFM), infrared (FTIR-ATR), and ion exchange capacity measurements. The transport properties were Mg\textsuperscript{2+} ion also evaluated by donnan dialysis experiments.

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