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Effect of Libr Concentration on the Structure and Performance of PVDF Membrane for Waste Water Treatment

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The requirements for quality drinking and industrial water are increasing and water resources are depleting. Moreover large amount of wastewater is being generated and dumped into water bodies without treatment. These have made improvement in water treatment efficiency and its reuse, an important agenda. Membrane technology for wastewater treatment is an advanced process and has become increasingly popular in past few decades. There are many traditional methods for tertiary treatment such as chemical coagulation, adsorption, etc. However recent developments in membrane technology field have led to manufacturing of better quality membranes at reduced costs. This along with the high costs of conventional treatment processes, high separation efficiency and relative simplicity of the membrane treatment process has made it an economically viable option for municipal and industrial purposes. Ultra filtration polymeric membranes can be used for waste water treatment and drinking water applications. The proposed work focuses on preparation of one such UF membrane- Polyvinylidene fluoride (PVDF) doped with LiBr for waste water treatment. Majorly all polymeric membranes are hydrophobic in nature. This property leads to repulsion of water and hence solute particles occupy the pores, decreasing the life time of a membrane. Thus modification of membrane through addition of small amount of salt such as LiBr helped us attain certain characteristics of membrane, which can be then used for many applications such as waste water treatment. The membrane characteristics were investigated through measuring its various properties such as porosity, contact angle and wettability to find out the hydrophilic nature of the membrane and morphology (surface as well as structure). Pure water flux, salt rejection and permeability of membrane were determined by permeation experiments. A comparative study of membrane characteristics of simple and modified membranes with various concentration of LiBr helped us know its affectivity.