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The Effect of Polyvnylpyrrolidone (PVP) on Fabrication of Polyethersulfone Hollow Fibre Membrane

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Abstract

The development of synthetic membrane had always been inspired by the challenge of material suitability and it properties modification in an appropriate technique to obtain a membrane structure with a suitable morphology for a specific separation. In membrane preparation, phase inversion is a versatile technique that allow polymer to be transformed from liquid to a solid state in a controlled manner. The preparation and process involved various factors and parameters specifically in fabricating hollow fibre membrane. In this study, factors associated in the process of fabricating hollow fibre were discussed. Furthermore, the effects of polymer concentration and polyvinylpyrrolidone (PVP) as additive in the dope solution on the morphology and separation performance were investigated. In addition to this by principle high porous membranes, well interconnected pores and surface properties are able to produce. By employing polyethersulfone (PES) as polymer, hollow fibre membranes were fabricated using N-methyl-2-pyrrolidone (NMP) as solvent and using water as the external coagulant. Finally the fabricated ultrafiltration membranes based on solute transport concentration (sodium chloride) and pure water permeation properties were characterized and evaluated.

Keyword: liquid separation membrane, hollow fibre spinning, polyethersulfone membrane.