The effect of Ethylene Glycol Monomethyl Ether additive on polyethersulfone membrane

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Macroporous membranes were prepared from aromatic polyethersulfone (PES) polymer, using aprotic solvent (N-methyl-2-pyrrolidone, NMP) and non-solvent additive (Ethylene Glycol Monomethyl Ether) by the phase separation co-process of the vapor-induced phase separation and liquid-induced phase separation. According to the change of the additive amount, the solvent amount and the ambient humidity, membrane characterization was studied. The non-solvent additive in casting solution played an important role in membrane morphology. During the vapor-induced phase separation, the ambient humidity led to water sorption on the surface of casting dope at which pore formation was generated. The prepared membranes were characterized by scanning electron microscope observations, measurements of capillary flow porometer, overall porosity, pure water flux and polystyrene size standards rejection.