SL22 - SHORT LECTURE

Formation Of PSS-PDADMAC Membranes Based On Salt Dilution-Induced Aqueous Phase Separation

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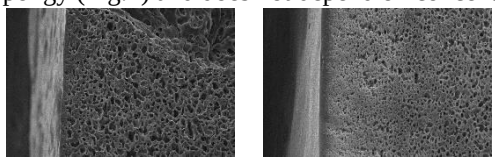
In recent decades, the use of organic solvents has increased due to the novel membranes' preparation. Organic solvents such as DMF, THF, or DMA are miscible with water and are potentially hazardous to humans and the environment. Therefore, the development of non-organic solvent membrane preparation methods is necessary.

In these study membranes based on Poly (sodium 4-styrene sulfonate) (PSS) and Poly (diallyl dimethyl ammonium chloride) (PDADMAC) were obtained by the method proposed by J. Kamp et al. [1]. The membrane preparation is based on interpolymer complexes formation in a water medium. The influence of the concentration of polymers (20 and 25 wt. %) and the thickness of the forming knife (200 and 400 μm) on the morphological properties of the formed membranes were studied. It was established that the average pore size for membranes based on 25% solutions is higher (107 ± 4 nm) than for 20% solutions (94 ± 3 nm). The pore structure in the samples is spongy (Fig.1) and does not depend on concentration or thickness.



1) 2)

Figure 1. *Cross-section SEM images of the samples cast with: 1) 200 μm, 2) 400 μm (based on 25 wt %)*

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References:
[1] J. Kamp et al., Journal of Membrane Science, 618 (2021) 118632.