

عنوان مقاله:

An investigation on the phase inversion behavior of polyethersulfone PES in ternary phase systems

محل انتشار:

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خلاصه مقاله:

Phase diagram has a significant role on assessing polymeric membranes phase transition and can provide useful guideline about the formation of membranes and morphology. Besides, liquid-liquid (L-L) phase separation is conducted to investigate how polymeric membrane morphology change. Polyethersulfone is used as one of the most important polymeric materials with high chemical and thermal stabilities for membrane fabrication. Accordingly phase transition behaviour of PES is investigated by attention on L-L demixing, vitrification and also the binodal and spinodal curve. Results reveal that changing the content of PES solution components have direct effects on membrane structure. Increasing polymer concentration which causes an early vitrification suppresses the growth of macrovoids and changing channel like structure to finger like configuration. Instantaneous L-L demixing leads the system to the formation of macrovoids. Moreover, wider miscibility region on ternary diagram determine higher solvent dissolution power. The results and findings in this investigation can be used for analysis the effects of PES solution components on phase transition and predict its influence on morphology and structure of membrane.

کلمات کلیدی:

PES, phase diagram, morphology, L-L demixing

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