

研究论文

聚丙烯酰胺/蒙脱土纳米复合物-聚乙烯醇共混膜的制备及其渗透汽化性能

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摘要 用原位聚合法制备聚丙烯酰胺/蒙脱土(PAM/MMT)纳米复合材料, 通过透射电镜研究了蒙脱土在聚丙烯酰胺基体中的形貌和分布. 结果表明, 蒙脱土以片层结构分布在聚合物基体中. 用超声波分散聚乙烯醇和聚丙烯酰胺-蒙脱土共混铸膜液制得共混膜, 用红外吸收光谱和扫描电镜研究了两者的相互作用和形貌. 考察了共混膜在异丙醇-水混合溶液中的溶胀吸附性能及共混比和蒙脱土含量对膜分离性能的影响, 结果显示, 聚乙烯醇膜中添加适量的蒙脱土纳米粒子可以大大改善膜的分离选择性.

关键词 [渗透汽化](#) [聚丙烯酰胺/蒙脱土](#) [聚乙烯醇](#) [共混膜](#)

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Preparation and Pervaporation Properties of Blend Membranes of Poly-acrylamide/montmorillonite Nano-composite and Poly(vinyl alcohol)

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Abstract Polyacrylamide(PAM)/montmorillonite(MMT) nano-composite was prepared by *in-situ* polymerization. Morphology and dispersion of MMT within PAM were investigated by means of TEM. The results show that MMT lamellas exfoliate from PAM matrix. Blend membranes were prepared by ultrasonic dispersion of PAM/MMT and poly(vinyl alcohol)(PVA) solution. The swelling properties of blend membranes in isopropanol aqueous solution and effect of blend ratio, MMT content on separation properties were investigated. The results show that the separation properties of membrane could be improved greatly by adding proper content of MMT nano-particle in PVA.

Key words [Pervaporation](#) [PAM/MMT](#) [Poly\(vinyl alcohol\)](#) [Blend membrane](#)

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