

Na₂O-SiO₂-Al₂O₃-NaCl-H₂O体系中ANA和SOD沸石膜的水热合成

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摘要 Na₂O-SiO₂-Al₂O₃-NaCl-H₂O体系中,以水玻璃和准一水软铝石为原料,分别在堇青石和玻璃载体上水热合成方沸石(ANA)和方钠石(SOD)沸石膜。研究水含量、反应温度、反应时间与多次合成对膜结晶的影响。用XRD, SEM, EDX表征膜的晶相、

形貌和化学组成。堇青石负载方沸石膜在对95% (wt.)乙醇水溶液的渗透蒸发实验中,水优先透过沸石膜的选择性显示了晶间孔的醇/水分离作用。非计量的

NaCl进入到在玻璃载体上成膜的方钠石笼中,致使该膜显示光致变色效应。

关键词 [二氧化硅](#) [氧化铝](#) [氯化钠](#) [过氧化氢](#) [体系](#) [沸石](#) [薄膜](#) [方钠石](#) [光致变色](#) [分子筛](#)
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Hydrothermal Synthesis of ANA and SOD Zeolite Membrane in Na₂O-SiO₂-Al₂O₃-NaCl-H₂O System

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Abstract The membranes of zeolite ANA (analcime) and zeolite SOD (sodalite) were synthesized in the reactant system of Na₂O-SiO₂-Al₂O₃-NaCl-H₂O using water glass and boehmite as the raw materials on the support of cordierite and glass, respectively. A study has been made of the influence of the molar ratio of H₂O/SiO₂ in the reactant, the reaction period, and the multiple synthesis on the crystallization of the membrane. The crystalline phase and the morphology of the membrane synthesized were characterized with XRD SEM and EDX. The pervaporation of 95%(wt.) ethanol/5%(wt.) water through analcime membrane supported on cordierite showed the separation selectivity preference to water molecules, indicating that the separation process occurs in the pores of ANA zeolite inter-crystallites. Non-stoichiometric NaCl was found in SOD membrane supported on glass, and the photochromic effect exhibited after irradiation with X-ray radiation.

Key words [SILICON DIOXIDE](#) [ALUMINIUM OXIDE](#) [SODIUM CHLORIDE](#) [HYDROGEN PEROXIDE](#) [SYSTEMS](#) [ZEOLITE](#) [THIN FILMS](#) [SODALITE](#) [PHOTOCHROMISM](#) [MOLECULAR SIEVE](#) [SCANNING ELECTRON MICROSCOPES](#) [X-RAY DIFFRACTION ANALYSIS](#)

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