

عنوان مقاله:

Synthesis of SAPO-34 catalyst with varying molar ratios of SiO₂/Al₂O₃ and H₂O/Al₂O₃

محل انتشار:

اولین همایش ملی فناوری های نوین در شیمی و مهندسی شیمی (سال: 1392)

تعداد صفحات اصل مقاله: 6

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خلاصه مقاله:

Silicoaluminophosphate, SAPO-34, is known as promising molecular sieve, which is widely used in catalysis, separation processes, and is being developed for new applications, especially in the methanol-to-olefin (MTO) process. In order to examine the influence of silicon and water contents on the morphology of SAPO-34 crystal, different SiO₂/Al₂O₃ and H₂O/Al₂O₃ ratios of synthesis gel were prepared hydrothermally at crystallization temperature of 190 C. The sources of Al, Si, and P were aluminum isopropoxide, silica gel, and phosphoric acid, respectively. The templates used were the mixture of 75 % morpholine and 25 % tetraethyl ammonium hydroxide. The samples were characterized by XRD, FTIR and SEM techniques. XRD showed that the crystallinity of samples increased with SiO₂/Al₂O₃ ratio. The samples with low silicon content had impurities of SAPO-5 and ALPO-5. SEM images showed the sample synthesized by SiO₂/Al₂O₃ = 0.17, H₂O/Al₂O₃=109.75 ratios had the smallest crystal size. The FTIR results showed that there was no considerable increase in the concentration of strong acidic hydroxyl groups with increasing of SiO₂/Al₂O₃ ratio.

کلمات کلیدی:

Synthesis, hydrothermal, SAPO-34, crytallinity, Morphology, strong acidic site

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