

Formation of Propylene from Methanol on Zeolite ZSM-5

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The catalytic conversion of methanol to propylene over HZSM-5 was investigated. The catalysts with varying $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratios were synthesized and characterized by XRD, SEM and BET. The acid properties of catalysts were measured by temperature programmed desorption (TPD) of ammonia. The reaction was carried out in a fixed bed reactor at atmospheric pressure with different reaction temperature. To investigate the effect of contact time on catalytic activity and selectivity in methanol conversion, reaction was carried out with change of catalyst amount. As contact time decreased, catalytic activity was decreased while propylene selectivity was slightly changed. It was found that propylene selectivity was improved in the case of low acidity and high reaction temperature.