

Synthesis of Ti-MCM-22 using SiO₂-TiO₂ xerogel

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Ti-MCM-22 was prepared by a direct hydrothermal synthesis method using SiO₂-TiO₂ xerogel. Characterization of the Ti-MCM-22 was carried out using XRD, SEM, UV-vis spectroscopy, and BET surface area measurement. The catalytic property of the Ti-MCM-22 prepared using SiO₂-TiO₂ xerogel was tested by 1-hexene epoxidation using H₂O₂ (30 %, aqueous). Compared with Ti-MCM-22 prepared by conventional process, Ti-MCM-22 prepared using SiO₂-TiO₂ xerogel exhibited significantly enhanced conversion and higher H₂O₂ selectivity. Increased Ti amount in the substrate mixture resulted in further increase in 1-hexene conversion at the expense of minor drop in H₂O₂ selectivity.