

Microwave Synthesis of Hierarchical TUD-1 with TS-1 Nano Zeolite

Yi Zhang Jiang, 박상언*, 옥대용, 김해련, 강남철
인하대학교
(separk@inha.ac.kr*)

TS-1 zeolite having MFI structure has been considered as an innovative heterogeneous catalyst represented highly effective catalytic activity for oxidation process due to well incorporation of isolated tetrahedral coordinated titanium onto framework. However, TS-1's micropores with only 10-membered ring (MR) limit its applications to the processing of large molecules. Recently, 3-D sponge-like mesoporous TUD-1 silica material has been reported. Since discovered TUD-1, it has been evoking great interests due to advantages like high surface area, tunable porosity and 3D random pore structure. However, the practical application is still limited due to their relatively low activity and thermal stability arising from the amorphous character of the pore walls. Thus, there has been great interest in the synthesis of hierarchically structured materials which combine the advantages of both mesoporous and microporous molecular sieves. Microwave synthesis could accelerate the preparation as well as give more hydrophobicity nature and much shorter synthesis time than conventional hydrothermal method. In present work, the hierarchical TUD-1 with TS-1 nano zeolite is synthesized under microwave irradiation.