Synthesis, Characterization, and Catalytic Properties of Zeolite UZM-35

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UZM-35 is the MSE-type zeolite synthesized via a charge density mismatch approach using much simpler, commercially available organic structure-directing agent (SDA) compared with MCM-68. In the present study, we report the detailed synthesis study of UZM-35 and its catalytic properties for 1,2,4-trimethylbenzene (TMB) disproportionation which is an important industrial process due to the increasing demand for *p*-xylene. Under the synthesis conditions studied here, UZM-35 was obtained from the synthesis mixtures with very narrow ranges of both SiO_2/Al_2O_3 and K_2O/Na_2O ratios in the presence of dimethyldipropylammonium hydroxide. It should be noted here that the proton form of UZM-35 exhibited the high initial conversion and xylene selectivity in 1,2,4-TMB disproportionation in spite of its fast deactivation. On the other hand, the catalytic activity was improved by the dealumination of UZM-35 zeolite through nitric acid treatment, which should be attributed to decrease of coke contents during the reaction. The overall catalysis results of our study has led to conclude that this MSE-type zeolite containing both 12- and 10-ring channels shows the boundary characteristics between large- and medium-pore zeolites in 1,2,4-TMB disproportionation.