

## Microwave Synthesis of Hierarchical Mordenite having House-of-card Morphology

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Mordenite(MOR) is one of the few industrially useful zeolites in the industrial catalytic processes such as (hydro)isomerization, hydrocracking and dewaxing etc.. MOR consisting of 12-membered ring channel in c-axis, which is interconnected by 8-membered ring channel in b-axis behaves like a one-dimensional zeolite for catalysis because the 8-MR channels are not enough in size for such reactant molecules to ingress. So, MOR's 1D 12MR pore is easily blocked and deactivated by carbonaceous deposit. Hence, hierarchical pore structure having both meso and micropores is highly required to overcome the problem.

In this study, hierarchical mordenites having inter- and intra-crystalline mesoporosities were successfully synthesized by microwave with a help of CTAB(Cetyl trimethyl ammonium bromide) as porogen and capping agent to control crystal growth resulting in nanosheet type house-of-card morphology. And their mesoporosities were controlled by the amounts of CTAB. And Claisen-Schmidt condensation between Benzaldehyde and 2'-Hydroxyacetophenone was tested to illustrate the overcoming of diffusional restriction over the microwave synthesized Hierarchical Mesoporous Mordenite(MMOR).