Synthesis of Periodic Mesoporous Materials from Various Zeolites

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Various zeolites are used as a starting material for the preparation of zeolite nano building unit solution. Various zeolites such as beta, mordenite, Y, USY and ZSM-5 are dissolved under NaOH/(SiO2+ Al2O3) = 0.5 ~ 3.0 and used for the synthesis of mesostructured materials such as MCM-41or SBA-15 (The mesoporous materials from zeolites are denoted as MMZ). The MMZ materials have highly ordered mesoporosity. The mesoporosity is also proved by N2 sorption and TEM. The physicochemical properties of MMZ materials are characterized by hydrothermal-thermalstability and ion exchange property. Most of the MMZ materials showed extraordinarily high hydrothermal-thermal stability and quite efficient ion exchange property, which are often shown in zeolites. IR, TPD, SEM and TEM are used for the further characterization of the MMZ materials.