

Zeolite–Organic Hybrid Material and Its Application

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Great attentions to develop new route for preparing the organic–inorganic hybrid zeolites have been paid because of overcoming the limitation of their uses in catalysis and separation from the lack of delicate functionality. Zeolite–Organic Hybrid Material can be used for the heterogeneous catalysts, separation of biomolecules and the manufacturing of enantiopure chemicals and pharmaceuticals, as well as heterogeneous enantioselective catalysts. We will introduce the methods how to prepare amino acid exchanged zeolite and, ammonium with long alkyl chain exchanged zeolite and its application for chiral separation and catalysts. We introduce some size- and shape-controlled inert zealots instead of silica as the base material of stationary phase, and both archival and chiral selectors to the base material for both separations. Separation tests with BTEX mixture showed good performance enough for using as the stationary phase of large-scale SMB for petroleum industry. Some subsequent MD simulations showed good correlation between the retention times and binding free energy. Some other application will be introduced also.