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(54) Title: METHODS FOR SYNTHESIS OF HIERARCHICALLY ORDERED CRYSTALLINE MICROPOROUS MATERIALS WITH LONG-RANGE MESOPOROUS ORDER

(57) Abstract: Methods for synthesis of hierarchically ordered zeolites and zeolite-type materials are provided. Synthesized hierarchically ordered zeolites and zeolite-type materials formed according to the methods herein possess a high-degree of well-defined long-range mesoporous ordering. The methods include base-mediated reassembly, by dissolution of the parent material to the level of oligomeric structural building units of the parent material, and minimizing or avoiding amorphization/structural collapse. The dissolution and self-assembly is comprehensively controlled to produce hierarchically ordered zeolites and zeolite-type materials according to the methods herein.