achieved by direct hydrothermal synthesis. This process eliminates the costly SDA and the waste treatment at the plant. The process is therefore more cost efficient and less equipment intensive.

[0007a] In one embodiment, there is provided a method of preparing a zeolite having a Si/Al ratio of at least 10, which comprises:

a. providing a first zeolite, and

b. converting the first zeolite to a second zeolite having a higher framework density than the first zeolite and a Si/Al ratio of at least 10, in the absence of an organic structure directing agent (OSDA).

[0008] In essence, the present inventors have developed a strategy and a set of guiding rules for organic structure-directing agent (OSDA)-free synthesis of zeolites via interzeolite transformation protocols. More specifically, as an example, high-silica MFI (ZSM-5), CHA (chabazite), STF (SSZ-35) and MTW (ZSM-12) zeolites can be synthesized from FAU (faujasite) or BEA (beta) parent zeolites via these methods. The successful transformations require that kinetic hurdles are overcome while exploiting the thermodynamic tendency of microporous materials to increase their framework density (FD). Kinetic barriers to interzeolite transformations are overcome for zeolites without common composite building units (CBU) between parent and daughter zeolites through the use of seeds. The use of seeds are not generally required when the starting and final structures share CBU components in common. These interzeolite transformation phenomena appear to be pseudomorphic in nature. The conversions conserve the volume occupied by the parent crystals and lead to similar size and crystal shape in the daughter materials. Such phenomena reflect that the incipient nucleation of the new structures occur at the outer regions of the parent crystals and lead to the nucleation of mesoporosity during transformations, as a natural consequence of the space-conserving nature of the structural changes and of the higher density of the daughter frameworks.

Brief Description of the Drawings

[0009] **Figures 1** shows X-Ray diffractograms of the products synthesized from parent (i) BEA and (ii) FAU via (a, b) direct, (c) template-assisted and (d) seed-assisted (using MFI seeds (S_1)) transformations. The synthesis was carried out at 423 K, $NaOH/SiO_2$ = 0.35 (from BEA) and 0.5 (from FAU) and H_2O/SiO_2 = 65 (from BEA) and 95 (from FAU) (Table 1).

[0010] **Figure 2** shows TEM images of MFI seeds (a) S_1 and (b) S_2 and products synthesized via interzeolite transformations of parent FAU (Si/Al=40) using (a) S_1 and (d)