Synthesis of LTA zeolites with controlled crystal sizes by variation of synthetic parameters: Effect of Na^+ concentration, aging time, and hydrothermal conditions

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In this work, comprehensive synthetic studies were carried out to control the size of crystalline microporous LTA zeolite. Crystal size and uniformity of the LTA zeolites was significantly influenced by modifying synthetic parameters. TMAOH/NaOH ratio affected significantly on the resultant crystal sizes. As the TMAOH/NaOH ratio increased, the crystal size of LTA zeolites decreased. For a given gel composition, variation of the aging time (0~72 h) of the synthesis solution had a significant influence on the average size and uniformity of the crystals. When the hydrothermal conditions were varied, longer hydrothermal treatment at higher temperature produced larger crystals. However, with sufficiently long aging time, the change of hydrothermal condition had a much less significant effect on the crystal size.