

TRANSFORMATION OF HEXAGONAL MESOPOROUS MATERIALS INTO SILICALITE-1: DRY GEL CONVERSION METHOD

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Pure silica hexagonal mesoporous materials were prepared by a modified synthesis method and these materials were used as mother supports for the synthesis of composites. The dry gel conversion method for synthesis of composites consists of two steps. The first step is impregnation of tetrapropylammonium hydroxide (TPAOH: a template for the synthesis of MFI zeolite) on mother supports and the second step is the dry-gel conversion (DGC) process, which is carried out in a Teflon-lined autoclave specially designed for this study. The autoclave is containing the TPAOH-impregnated-MCM-41 and deionized water and dry gel conversion process performed at 448 K for several hours. All the synthesized samples are calcined and analyzed by XRD, BET and FT-IR spectroscopy to show that the pore wall is crystalline. All the results of characterization indicated that the formation of silicalite-1 occurred on surface of wall of mesoporous materials and key factor of dry gel conversion method, without collapse of mesopore structure, amount of impregnated TPAOH and dry gel conversion process times.