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Synthesis and characterization of sodium titanosilicate, Na_2TiSiO_5

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Abstract Nanometer-sized Na_2TiSiO_5 particles were synthesized by the modified sol-gel method, from NaOH, Na_2SiO_3 and $TiCl_4$ in ideal cation stoichiometry for Na_2TiSiO_5. The synthesized product was characterized by structural (XRD), spectroscopic (FTIR) and thermal analyses (TG). Electron microscopy (SEM and HRTEM) was used to evaluate the morphology of synthesized Na_2TiSiO_5. It was found that bulk quantities of nano-sized particles of Na_2TiSiO_5 could be obtained at temperatures below 800^0C using the sol-gel method. The HRTEM photographs reveal nanoparticles in the size range of 3 – 16 nm with mean diameter found at 7.45 nm.

Keywords: microporous titanosilicates, sol-gel, XRD, SEM, HRTEM.

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