

NMR characterization, acidity and stability studies of some modified zeolites. Ali, M. Ashraf; Hassan, Azfar; Wazeer, Mohamed I. M.. Center for Refining and Petrochemicals, Research Institute, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia. Canadian Journal of Analytical Sciences and Spectroscopy (2001), 46(4), 111-117.

Abstract

A no. of pentasil type zeolites were prepd. incorporating boron or gallium. The chem. environment of boron and gallium in modified zeolites was studied by ^{29}Si , ^{27}Al , ^{11}B , and ^{71}Ga magic-angle spinning (MAS) NMR. The ^{11}B spectra showed a no. of peaks and indicated the incorporation of boron mostly in tetrahedral environments. The framework Si/Al ratios in these zeolites were worked out from the intensities of different peaks in the silicon spectra. Temp.-programmed desorption results showed a marked decrease in the acidity of the zeolites when boron or gallium was incorporated. Thermal anal. results indicated that both boron and gallium substitution decreased the thermal stability of the zeolites.