

## **Abstract**

Preparation, textural and structural characterizations as well as acid properties of some aluminium, zirconium pillared montmorillonite (from Algerian bentonite) and including alumina or zirconium pillared montmorillonite supported palladium are reported. Heat resistant basal spacings of 1.7 nm, surface areas in the range of 250–300 m<sup>2</sup>/g and micropore volumes of about 0.1 cm<sup>3</sup>/g were obtained. The acid activation of montmorillonite prior pillaring conduces to a resulting material with significantly higher pore volume and acidity. The improvement in acidity is mainly of the Brønsted acid type. The modification of zirconium-pillared montmorillonite with sulfate ions affects the structural properties of the pillared sample but gives a material with strong acid properties and both Lewis and Brønsted acid types are enhanced. It is reported also that textural and structural properties are not affected by the impregnation of a metallic function (1 wt.% Pd loading) but the acid properties changed. The pillared montmorillonite supported palladium has more Brønsted acidity than does the pillared montmorillonite. Decomposition of isopropanol was studied on these systems at low reaction temperature.