

## Study of thermal diffusivity of Zn/Al layered double hydroxide synthesized with different molar ratio of Zn/Al salts

### ABSTRACT

Thermal diffusivity of zinc-aluminum layered double hydroxides synthesized at different molar ratios of Zn to Al; at pH 7, 8 and 10 were measured using polyvinylidene difluoride (PVDF) photoflash technique. The samples were prepared using Zn (NO<sub>3</sub>)<sub>2</sub> and Al (NO<sub>3</sub>)<sub>3</sub> solutions by dropwise addition of NaOH solution with vigorous stirring under nitrogen atmosphere. The different ratios of Zn to Al were obtained by changing the molar ratio of Zn (NO<sub>3</sub>)<sub>2</sub> to Al (NO<sub>3</sub>)<sub>3</sub> solutions. The slurry formed was kept at 70 °C in an oil bath shaker for 18 h and then filtered, washed and dried in an oven for another 48 h at 70 °C. A simple photoflash and PVDF transducer were used as light source and thermal wave detector, respectively. All the measurements of thermal diffusivity of Zn-Al layered double hydroxide were carried out at room temperature. Thermal diffusivity for all series of sample prepared at pH=7, 8 and 10 increase from R=3 to R=5. Thermal diffusivity values of zinc-aluminum layered double hydroxide synthesized at pH 8 are higher than the values obtained for samples prepared at pH=7 (except for R=5) and at pH 10 are highest than two other series at pH 7 and 8.

**Keyword:** Thermal diffusivity; Zn-Al ratio; LDH; Photo - flash; Polyvinylidene difluoride