Intercalation of anthranilate ion into zinc-aluminium-layered double hydroxide

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Abstrak

Nanocomposites of zinc-aluminium-anthranilate (ZAAN) have been synthesized at different concentrations of anthranilic acid by co-precipitation method. These materials have been examined in detail by powder X-ray powder diffraction (PXRD) which showed the expansion of the basal spacing from 0.89 to ca. 1.33 nm and the shifting of the 003 peak towards the lower 2q angle. This indicates that the anthranilate anion was successfully intercalated into the interlayer gallery. However, FTIR analysis showed nitrate anion was also co-intercalated in the interlayer. The resulting nanocomposites show Type IV adsorption-desorption isotherms indicated the mesoporous structure of the material. BET surface area was found to be slightly different compared to zinc-aluminium-nitrate-layered double hydroxide (ZANO) after the intercalation process took place. Both ZANO and ZAAN have similar surface morphology, namely a flaky-like structure, but they are of different sizes.