Supporting information

A simple and reliable method for determining the delamination degree of nitrate and glycine intercalated LDHs in formamide

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1. Experimental section

1.1 Synthesis of Mg$_3$Al-NO$_3$ and Mg$_3$Al-Glys LDHs

A salt solution A (100 mL) containing a mixture of 0.075 mol Mg(NO$_3$)$_2$·6H$_2$O and 0.025 mol Al(NO$_3$)$_3$·9H$_2$O was added drop-wise into a basic solution B (100 mL) containing 0.05 mol Na$_2$NO$_3$ (or glycine). The pH value of solution B was kept constant at 10 by the addition of a solution C (50 mL) containing 0.17 mol NaOH. The resulting mixture D was hydrothermally treated at 120 °C overnight. After hydrothermal aging, the sample was filtered and washed with deionized water until pH=7, then dried at 100 °C in an oven.

1.2 Delamination of LDHs

For the delamination of LDHs, various amounts of Mg-Al-NO$_3$ and Mg-Al-Gly LDHs were put into 20 mL formamide, followed by magnetic stirring till no sediment was observed upon standing.

1.3 Synthesis of nanospherical Mg$_3$Al-CO$_3$ LDH suspension in water

The nanospherical Mg$_3$Al-CO$_3$ LDH suspension in water was synthesized using a modified coprecipitation method. A salt solution A (100 mL) containing a mixture of 0.0075 mol Mg(NO$_3$)$_2$·6H$_2$O and 0.0025 mol Al(NO$_3$)$_3$·9H$_2$O was added drop-wise to a basic solution B (100 mL) containing 0.05 mol Na$_2$CO$_3$. The pH of the precipitation solution was kept constant at 12 by adding NaOH solution (3.4 M) drop-wise. The resulting mixture D was aging overnight at room temperature. Then it was filtered by medium speed filter paper, by which a stable LDH suspension in water was obtained.

1.4 Characterization of samples

XRD patterns were recorded on a Shimadzu XRD-6000 instrument in reflection mode with Cu Ka radiation. The accelerating voltage was set at 40 kV with 30 mA current.
The morphologies of samples were characterized by field emission scanning electron microscope (FESEM, SU-8020). High resolution transmission electron microscopy (HR-TEM) images were obtained on a JEOL 2010, operating at 200 kV. The turbidity of the delaminated LDHs dispersions in formamide was measured using a turbidimeter (TN-100, Eutech Instruments, Singapore).

**Figure S1.** XRD diffraction patterns of delaminated Mg-Al-GLy LDH dispersion gels.