

Investigations on the system
 $[\text{Mg}_6\text{Al}_2(\text{OH})_{16}]^{2+} \text{X}_{2/m}^{m-} \cdot n\text{H}_2\text{O}$ with
 $\text{X}=\text{CO}_3^{2-}$, R-COO^- , R-SO_3^- , R-O-SO_3^-

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Contamination of groundwater and soils by chlorinated solvents is a worldwide problem. Among others, Layered Double Hydroxides (LDH) have been used for their remediation, as they are able to intercalate and to absorb contaminants and to reduce their mobility.

In this study, Mg,Al-LDHs with the hydrotalcite structure, containing carboxylates, organic sulfonates or alkylsulfates of different length in the interlayer space, have been prepared by the coprecipitation method at supersaturated conditions under N_2 bubbling to avoid contamination by atmospheric CO_2 . A reference sample containing interlayer carbonate was also prepared to be used as a precursor to mixed oxides and to check their ability for this retention in a structure-reconstruction process. All the samples were aged in the mother liquor for two days at room temperature and then dried in an oven at 45°C . Our aim was to investigate the effect of different functional groups in the interlayer anion and the chain length on the ability to tune retention of the contaminant species, due to different electronic interactions and different sizes of the interlayer space. The interlayer organic anion is expected to provide a hydrophobic environment in the interlayer which favours retention of the organic contaminants. The samples have been characterised by powder X-ray diffraction, thermal analyses, Fourier transform infrared spectroscopy, specific surface area and particle size distribution. Preliminary results have shown that the reconstruction process leads to the retention of significant amounts of chloroorganic compounds.

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