

Lanthanides-clay nanocomposites: Synthesis, characterization and optical properties

Celedon, Salvador

Quiroz, Carolina

Gonzalez, Guillermo

Sotomayor Torres, Clivia M.

Benavente, Eglantina

Complexes of Europium(III) and Terbium(III) with 2,2-bipyridine and 1,10-phenanthroline were inserted into Na-bentonite by ion exchange reactions at room temperature. The products display interlaminar distances and stoichiometries in agreement with the ion exchange capacity and the interlayer space available in the clay. The optical properties of the intercalates, being qualitatively similar to those of the free complexes, are additionally improved with respect to exchange processes with the medium, especially in a moist environment. The protection against hydrolysis, together with the intensity of the optical transition $5D_0-5F_2$ observed in the nanocomposite, makes these products promising for the development of novel optical materials. © 2008 Elsevier Ltd. All rights reserved.