

Sorting phenomena and chirality transfer in fluoride-bridged macrocyclic rare earth complexes.

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The reaction of fluoride anions with mononuclear lanthanide(III) and yttrium(III) hexaaza-macrocyclic complexes results in the formation of dinuclear fluoride-bridged complexes. As indicated by X-ray crystal structures, in these complexes two metal ions bound by the macrocycles are linked by two or three bridging fluoride anions, depending on the type of the macrocycle. In the case of the chiral hexaaza-macrocycle L1 derived from *trans*-1,2-diaminocyclohexane, the formation of these μ_2 -fluorido dinuclear complexes is accompanied by enantiomeric self-recognition of macrocyclic units. In contrast, this kind of recognition is not observed in the case of complexes of the chiral macrocycle L2 derived from 1,2-diphenylethylenediamine. The reaction of fluoride with a mixture of mononuclear complexes of L1 and L2, containing two different Ln(III) ions, results in narcissistic sorting of macrocyclic units. Conversely, a similar reaction involving mononuclear complexes of L1 and complexes of achiral macrocycle L3 based on ethylenediamine results in sociable sorting of macrocyclic units and preferable formation of heterodinuclear complexes. In addition, formation of these heterodinuclear complexes is accompanied by chirality transfer from the chiral macrocycle L1 to the achiral macrocycle L3 as indicated by CPL and CD spectra.

Słowa kluczowe

Mixtures, Chirality, Anions, Macrocycles, Ions

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