A heterobimetallic cyanide-bridged $Cu^{II}Fe^{III}Cu^{II}$ trimer. Synthesis, crystal structure and magnetic properties.

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Rok wydania

2010

Czasopismo

Polyhedron

Numer woluminu

29

Strony

2546-2552

DOI

10.1016/j.poly.2010.05.027

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

A new Cu(II)–Fe(III)–Cu(II) heterobimetallic trimer $(CuL_\alpha)_2[Fe(CN)_6]\cdot ClO_4$ (where L_α = *N*-*dl*-5,7,7,12,14,14-hexamethyl-1,4,8,11-tetraazacyclotetradeca-4,11-diene), **1** has been synthesized. This compound can be viewed as a heterobimetallic trinuclear unit Cu(II)–Fe(III)–Cu(II), in which the magnetic centers are linked by cyanate bridges. The coordination polyhedra of metal (M) atoms can be described as a slightly distorted tetragonal pyramid (Cu) and an almost ideal octahedron (Fe) with nitrogen atoms in axial positions. In the structure hydrogen bonds can be found, which create chains along the crystallographic [0 1 0] axis and a two-dimensional net in the crystallographic (1 0 0) plane. The magnetic behavior of complex **1** has been investigated over the temperature range 1.8–300 K. Complex **1** displays ferromagnetic coupling inside the trinuclear core of CuFeCu.

Słowa kluczowe

Chain structure, Cyano-bridged Fe(III) complex, Macrocyclic complex, Exchange interaction

Adres publiczny

https://doi.org/10.1016/j.poly.2010.05.027

Strona internetowa wydawcy

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