

X-ray structure, magnetic and catalytic properties of a cyclic trinuclear $\text{Co}^{\text{II}}/\text{Co}^{\text{III}}/\text{Co}^{\text{III}}$ complex with a μ^3 -hydroxy anion.

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Streszczenie

The mixed-valent cyclic trinuclear cobalt(II)/cobalt(III)/cobalt(III) complex $\text{tris}(\text{dibenzoylmethanato-}1\kappa^2\text{O},\text{O}';2\kappa^2\text{O},\text{O}';3\kappa^2\text{O},\text{O}')(\mu_3\text{-hydroxo-}1:2\kappa^2\text{O};1:3\kappa^2\text{O};2:3\kappa^2\text{O})\text{tetrakis}(\mu\text{-pyrazolato-}1:2\kappa^4\text{N}^1\text{N}^2;1:3\kappa^2\text{N}^1\text{N}^2;2:3\kappa^2\text{N}^1\text{N}^2)\text{-}1,2\text{-dicobalt(III)-}3\text{-cobalt(II)}$ with four bridging pyrazolate anions and a μ^3 -hydroxy anion has been synthesized and its molecular structure has been elucidated on the basis of X-ray crystallographic, magnetic, NMR, and EPR studies. The remaining coordination sites of the pentacoordinate cobalt(II) and hexacoordinate cobalt(III) centers are occupied by oxygen donor atoms of dibenzoylmethanate anions, rendering the complex soluble in most organic solvents. The complex has been found to effectively catalyze the decomposition of *tert*-butyl hydroperoxide (TBHP) in chlorobenzene with a short induction period and a half-life of 80 min and to catalyze the oxidation of cyclohexene to 2-cyclohexen-1-one with oxygen and to 2-cyclohexen-1-ol with TBHP.

Adres publiczny

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