

Efficient reduction of dioxygen with ferrocene catalyzed by thiocarbohydrazone tetranuclear cobalt(III) coordination compound.

Autorzy

Mohammad Ali Kamyabi
Fariba Alirezaei
Fatemeh Soleymani-Bonoti
Rahman Bikas
Miłosz Siczek
Tadeusz Lis

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Streszczenie

The synthesis, characterization and crystal structure of a tetranuclear cobalt(III) coordination compound, $[\text{Co}_4(\text{L})_4](\text{HSO}_4)_2(\text{SO}_4)\cdot 4.1(\text{CH}_3\text{OH})\cdot \text{H}_2\text{O}$ (**1**), with thiocarbohydrazone based ligand is reported. This compound can efficiently catalyze the reduction of oxygen (O_2) by a weak electron donor ferrocene, (Fc), at the polarized water/dichloroethane interface which was investigated by voltammetry and biphasic shake-flask experiments. Compound **1** contains four cobalt cores which are connected together by sulphur atoms. By having four cobalt cores this coordination compound provides a multi-electron transfer system for oxygen reduction reactions. The results also suggest that compound **1** catalyzes decomposition of H_2O_2 at the interface.

Słowa kluczowe

cobalt catalyst, crystal structure, liquid–liquid interface, multinuclear coordination compound, oxygen reduction reaction

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