Molecular oxygen reduction catalyzed by a highly oxidative resistant complex of cobalt-hydrazone at the liquid/liquid interface.

Autorzy

Mohammad Ali Kamyabi

Fatemeh Soleymani-Bonoti

Rahman Bikas

Hassan Hosseini-Monfared

Nematollah Arshadi

Miłosz Siczek

Tadeusz Lis

Rok wydania

2015

Czasopismo

Physical Chemistry Chemical Physics

Numer woluminu

17

Strony

32161-32172

DOI

10.1039/c5cp04695e

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

A new complex of Co(III) using an oxidative stable hydrazone ligand, CoL, was synthesized and characterized by elemental analysis, spectroscopic methods and single crystal X-ray analysis where HL is bis-[(*E*)-*N*′-(phenyl(pyridin-2-yl)methylene)]carbohydrazide. X-ray analysis revealed that the complex is mononuclear and the coordination environment around the Co(III) core is *trans*-[CoN_4Cl_2]. The catalytic activity of the complex in the oxygen reduction reaction was investigated. The complex is a highly oxidative resistant cobalt-hydrazone which can efficiently catalyze the reduction of oxygen (O_2) by a weak electron donor ferrocene, (Fc), at the polarized water/1,2-dichloroethane (DCE) interface. Oxygen reduction is coupled with proton transfer from water to the organic phase to form hydrogen peroxide, which is extracted into the aqueous phase.

Adres publiczny

http://dx.doi.org/10.1039/c5cp04695e

Strona internetowa wydawcy

https://www.rsc.org/