Uniwersytet Wrocławski

Repozytorium

Plik pochodzi z repozytorium Wydziału Chemii Uniwersytetu Wrocławskiego

Ca^{2+}-driven self-assemby of POMs into 2D/3D coordination polymers.

Autorzy

Halyna I. Buvailo

Valeriya G. Makhankova

Vladimir N. Kokozay

Irina V. Omelchenko

Svitlana V. Shishkina

Piotr Zabierowski

Dariusz Matoga

Julia Jezierska

Rok wydania

2017

Czasopismo

European Journal of Inorganic Chemistry

Strony

3525-3532

DOI

10.1002/ejic.201700400

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

A number of new POM-based coordination polymers, including two-dimensional $(NH_4)_4\{[Ca(H_2O)_5][P_2Mo_5O_{23}]\}\cdot 3H_2O$ (**4**) (bpy = 2,2′-bipyridine), and a rare anion-based $(NH_4)_5[Co^{III}(bpy)_3]\{[Ca(H_2O)_4]_2[Ca(H_2O)]_6[PMo_6O_{22}(PO_4)_3]_2\}\cdot 17H_2O$ (**3**), as well as three-dimensional $(NH_4)_8[Co^{III}(bpy)_3]_2\{[Ca(H_2O)_3]_2[P_2Mo_5O_{23}]_3\}\cdot 21H_2O$ (**2**) have been prepared using a facile wet-chemistry approach and have been characterized by X-ray diffraction analysis and a variety of physicochemical methods. The self-assembly in the above compounds has been rendered by the use of Ca^{2+} ions as a suitable linker in the network formation. Moreover, Ca^{2+}ions were also involved in the formation of an extremely rare type of POM anion $\{[Ca(H_2O)]_6[PMo_6O_{22}(PO_4)_3]_2\}^{12-}$. The synthesis attempt without the alkaline-earth metal led, predictably, to the formation of the discrete Strandberg-based compound $(NH_4)_3[Co^{III}(bpy)_3][P_2Mo_5O_{23}]\cdot 14H_2O$ (**1**). Thus, the present work reports on a suitable strategy to influence complex POM-based systems towards self-organization into multidimensional structures of higher hierarchy. The obtained compounds have been shown to possess electrocatalytic activity towards the reduction of iodates(V).

Słowa kluczowe

Polyoxometalates, coordination polymers, electrochemistry, electrocatalytic activity, calcium

Adres publiczny

http://dx.doi.org/10.1002/ejic.201700400

Strona internetowa wydawcy

onlinelibrary.wiley.com

Plik został wygenerowany dnia 2026-11-08 21:17:15

Adres w repozytorium https://old.chem.uni.wroc.pl/pl/repozytorium/_ioDLpO.