

Vanadate complexes bearing an imidazolidine-bridged bis(aryloxy) ligand: synthesis and solid state and solution structure.

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Streszczenie

A new imidazolidine-bridged bis(aryloxy) ligand precursor (**H₂2L**) [**H₂2L** = 2,2'-(imidazolidine-1,3-diylbis(methylene))bis(4-(1,1,3,3-tetramethylbutyl-2-yl)phenol)] was prepared in a relatively high yield (~60%) via a single-step Mannich condensation of 4-(1,1,3,3-tetramethylbutyl)phenol, ethylenediamine and paraformaldehyde at 2 : 1 : 3 molar ratio and characterized by chemical and physical techniques including X-ray crystallography. Reactions of **H₂2L** with [VO(OEt)₃] at 1 : 1 and 1 : 2 molar ratios in toluene afforded [V(L-κ³O,N,N,O)(O)(OEt)] (**1**) and [V₂(μ-L-κ⁴O,N,N,O)(μ-OEt)₂(O)₂(OEt)₂] (**2**), respectively. Alcoholysis of **1** with EtOH enables elimination of one molecule of **H₂2L** and the formation of **2**. Compounds **1** and **2** were characterized by IR and NMR spectroscopy as well as ES-MS experiments. The definitive molecular structure of **2** was provided by a single-crystal analysis and revealed its dinuclear nature, featuring two octahedral vanadium centres bridged by both OEt groups and the L ligand. The ⁵¹V, ¹H and ¹³C NMR spectra as well as ES-MS showed that **2** does not stay intact in solution and undergoes dissociation to give **1** and [VO(OEt)₃].

Adres publiczny

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