

Vanadium phenoxide complexes with oxide, nitride or hydrazide co-ligands: preparation and crystal structures of $[V(OC_6H_3Pr^{i-2,6})_3NLi(C_4H_8O)_3]$, $[VO_2(OC_6H_3Pr^{i-2,6})_2]_2[\mu-Li(C_4H_8O)_2]_2$ and $[V(NNMe_2)(OC_6H_3Pr^{i-2,6})_3]$.

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Streszczenie

Treatment of $[V(OC_6H_3Pr^{i-2,6})_2(\mu-OC_6H_3Pr^{i-2,6})_2Li(C_4H_8O)]$ (**1**) with $SiMe_3N_3$ in hexane gives two products. The first, $[V(OC_6H_3Pr^{i-2,6})_3NLi(C_4H_8O)_3]$ (**2**), contains the V–N–Li linkage and has essentially tetrahedral vanadium ($d(V-N)$ 1.565(5), $d(Li-N)$ 2.061(13), $d(V-OC_6H_3Pr^{i-2,6})$ (average) 1.828(4) Å; angle (Li–N–V) 164.0(5)°). The second product, $[VO_2(OC_6H_3Pr^{i-2,6})_2]_2[\mu-Li(C_4H_8O)_2]_2$ (**3**), which is formed by adventitious entry of water into the reaction solution, contains an eight-membered ring structure formed by two $Li(thf)_2$ groups bridging two tetrahedral $VO_2(OC_6H_3Pr^{i-2,6})_2$ units ($d(V-O)$ (range) 1.557(10)–1.669(9), $d(V-OC_6H_3Pr^{i-2,6})$ (average) 1.803(12), $d(Li-O)$ (vanadium) (average) 1.91(7) Å). The hydrazide complex $[V(NNMe_2)(OC_6H_3Pr^{i-2,6})_3]$ (**4**) has been synthesised by treatment of the dianion $[VCl_3]_2[\mu-NNMe_2]_3]^{2-}$ with $Li[OC_6H_3Pr^{i-2,6}]$. Compound **4** has distorted tetrahedral geometry at vanadium, ($d(V-N)$ 1.653(3), $d(V-OC_6H_3Pr^{i-2,6})$ (average) 1.793(3), $d(N-N)$ 1.311(4) Å, and angle (V–N–N) 175.8(3)°). Compound **4** reacts with $N(CH_2CH_2SH)_3$ to give $[V(NNMe_2)\{N(CH_2CH_2S)_3\}]$. Spectroscopic and other physical data for these complexes are presented and discussed.

Słowa kluczowe

Crystal structures, Vanadium complexes, Nitride complexes, Hydrazide complexes, Phenoxide complexes

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