

Title: Reactivity of bulky tris(phenylpyrazolyl)methanesulfonate copper(I) complexes towards small unsaturated molecules

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Abstract: Reaction of the tris(3-phenylpyrazolyl)methane sulfonate species (Tpms(Ph))Li with the copper(I) complex [Cu(MeCN)(4)][PF₆] affords [Cu(Tpms(Ph))(MeCN)] 1. The latter, upon reaction with equimolar amounts of cyclohexyl-(CyNC) or 2,6-dimethylphenyl (XylNC) isocyanides, or excess CO, furnishes the corresponding Cu(I) complexes [Cu(Tpms(Ph))(CNR)] (R = Cy 2, Xyl 3) or [Cu(Tpms(Ph))(CO)] 4. The ligated isocyanide in 2 or 3 (or the acetonitrile ligand in 1) is displaced by 3-iminoisoindolin-1-one to afford 5, the first copper(I) complex containing an 3-iminoisoindolin-1-one ligand. The ligated acetonitrile in 1 undergoes nucleophilic attack by methylamine to give the amidine complex [Cu(Tpms(Ph)){MeC(NH)NHMe}] 6, whereas only the starting materials were recovered from the attempted corresponding reactions of 2 and 3 with methylamine. Complexes 1 or 6 form the trinuclear hydroxo-copper(II) species [(μ-Cu){Cu(μ-OH) (2)(Tpms(Ph))}(2)] 7 upon air oxidation in moist methanol. In all the complexes the scorpionate ligand facially caps the metal in the N,N,O-coordination mode. (C) 2012 Elsevier B. V. All rights reserved.

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