

**Название публикации:**

Heptanuclear Cage CuII-Silsesquioxanes: Synthesis, Structure and Catalytic Activity

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**Аннотация:**

Two prismatic phenyl- (PhSiO<sub>1.5</sub>)<sub>14</sub>(CuO)<sub>7</sub> (1, 29 % yield) and methyl- (MeSiO<sub>1.5</sub>)<sub>14</sub>(CuO)<sub>7</sub> (2, 19 % yield) heptacoppersilsesquioxanes were obtained by the interaction of Cu,Na-based cage silsesquioxanes [(RSiO<sub>1.5</sub>)<sub>12</sub>(CuO)<sub>4</sub>(NaO<sub>0.5</sub>)<sub>4</sub>] (R = Ph, Me) with 4,4'-bipyridine and pyrazine, respectively, acting as "silent witness" ligands. Unusual molecular topologies of both compounds 1 and 2, which are the first representatives of cage silsesquioxanes with seven metal ions in their cores, were established by X-ray diffraction studies. Complex 1 was found to be an active precatalyst in the oxidation of alkanes and 1-phenylethanol to alkyl hydroperoxides and acetophenone, respectively. Alkanes were oxidized by hydrogen peroxide, and the alcohol was oxidized by tert-butyl hydroperoxide. © 2018 WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim

**Ключевые слова:**

Cage compounds, Copper, Homogeneous catalysis, Metallasilsesquioxanes, N ligands, Oxidation