

Synthesis, Crystal Structure and Thermal Decomposition Reaction of the New Copper(I) Cyanide Coordination Polymer Poly[tri- μ_2 -cyano-C,N)-bis(μ_2 -2,3-dimethyl-pyrazine-N,N)]tricopper(I)

Jan Greve and Christian Näther

Institut für Anorganische Chemie der Christian-Albrechts-Universität zu Kiel,
Olshausenstr. 40, D-24106-Kiel, Germany

Reprint requests to Dr. Christian Näther. E-mail: cnaether@ac.uni-kiel.de

Z. Naturforsch. **59b**, 1325 – 1331 (2004); received August 11, 2004

Dedicated to Professor Hubert Schmidbaur on the occasion of his 70th birthday

The new copper(I) coordination polymer poly[tri- μ_2 -cyano-C,N)-bis(μ_2 -2,3-dimethyl-pyrazine-N,N)] tricopper(I) (**I**) was prepared by the reaction of copper(I) cyanide with 2,3-dimethylpyrazine in acetonitrile. In the crystal structure of **I** a novel CuCN substructure is found which is connected by the dimethylpyrazine ligands into a three-dimensional coordination network. The thermal properties of **I** were investigated using simultaneous differential thermoanalysis (DTA), thermogravimetry (TG) and mass spectrometry (MS) as well as temperature resolved X-ray powder diffraction. On heating, compound **I** loses a part of the dimethylpyrazine ligands in an endothermic reaction to form the known ligand poor compound (CuCN)₂-(2,3-dimethylpyrazine) **II** as an intermediate which decomposes to CuCN on further heating.

Key words: Copper(I) Pseudohalide, Dimethylpyrazine, Coordination Polymers, Crystal Structure, Thermal Decomposition