One-dimensional Hydrogen-bonded Chloride-Hydrate Assembly $\{[(H_2O)_4Cl_2]^{2-}\}_\infty$

Ji-Xiang Dai, Fang-Hui Wu, Wen-Rui Yao, and Qian-Feng Zhang

Department of Applied Chemistry, Anhui University of Technology, Ma'anshan, Anhui 243002, China

Reprint requests to Dr. Qian-Feng Zhang. Fax.: 86-555-2311552. E-mail: zhangqf@ahut.edu.cn

Z. Naturforsch. **2007**, *62b,* 491 – 494; received November 26, 2006

A hydrogen-bonded chloride-hydrate assembly $\{[(H_2O)_4Cl_2]^{2-}\}_\infty$ has been ion-countered by the complex cations $[Fe([9]aneS_3)_2]^{2+}$ ([9]aneS$_3$ = 1,4,7-trithiacyclononane). In $\{[(H_2O)_4Cl_2]^{2-}\}_\infty$, four water molecules and two chloride ions are self-assembled to form a one-dimensional supramolecular array of O–H···O and O–H···Cl hydrogen bonding, which consists of fused four- and six-membered rings. The discrete cation $[Fe([9]aneS_3)_2]^{2+}$ has a nearly regular octahedral FeS_6 core with an average Fe–S bond length of 2.2586(5) Å.

Key words: Supramolecular Chemistry, Hydrogen Bond, Chloride-Hydrate, Self-Assembly, Iron(II) Complex