Phase Transitions in Crystalline $[Me(H_2O)_6](BF_4)_2$. Part I (Me = Mn, Fe, Co, Ni and Zn)

E. Mikuli, A. Migdał-Mikuli, and S. Wróbel[a]

Department of Chemical Physics, Faculty of Chemistry of the Jagiellonian University, Ingardena Street 3, 30-060 Kraków, Poland

[a] Department of Solid State Physics, Smoluchowski Institute of Physics, Jagiellonian University, Reymonta Street 3, 30-059 Kraków, Poland

Z. Naturforsch. **54 a,** 225–228 (1999); received December 12, 1998

Solid polymorphism in five compounds of the type $[Me(H_2O)_6](BF_4)_2$, where Me = Mn, Fe, Co, Ni and Zn, have been studied in the temperature range 120 - 330 K by DSC. For each substance at least three solid modifications have been found. In addition, for compounds with Me = Mn, Fe and Zn some new low temperature phase transitions have been observed. The transition temperatures for the $[Me(H_2O)_6](BF_4)_2$ compounds are distinctly lower than those for the $[Me(H_2O)_6](ClO_4)_2$ compounds. The entropy- and enthalpy-changes at the phase transitions of the hexaaquametal(II) tetrafluoroborates are significantly lower than those for the corresponding chlorates(VII). Linear correlations between the highest transition temperature and the crystal density are found for both series of these isomorphous compounds.

Key words: Hexaaquametal(II) tetrafluoroborates; Phase Transitions; DSC Method.

Reprint requests to E. Mikuli. E-mail: mikuli@trurl.ch.uj.edu.pl