Synthese und Untersuchung der Lanthanoidoxidnitrate LnONO$_3$ (Ln = Pr, Nd und Sm-Yb)

Synthesis and Studies of Lanthanide Oxide Nitrates LnONO$_3$ (Ln = Pr, Nd, and Sm-Yb)

Simone Dill und Hans-Jürgen Meyer

Institut für Anorganische Chemie der Universität Tübingen, Auf der Morgenstelle 18, D-72076 Tübingen

Sonderdruckanforderungen an Prof. H.-J. Meyer. E-mail: juergen.meyer@uni-tuebingen.de

Z. Naturforsch. **61b,** 11 – 16 (2006); eingegangen am 27. September 2005

The lanthanide oxide nitrates LnONO$_3$ with Ln = Pr, Nd, and Sm-Yb were synthesised by thermal decomposition of hydrated lanthanide nitrates. The compounds were refined isotypically to YONO$_3$ in the tetragonal space group $P4/nmm$ and the structure is closely related to the PbFCl-type. Because of the orientational disorder of NO$_3^-$ in this structure refinement a possible superstructure is discussed.

Together with the oxide ions, the metal ions form $[Ln_2O_2]^{2+}$ layers, alternating with double $(NO_3)^-$ layers. Lattice parameters were determined by powder X-ray diffraction, and the structure of HoONO$_3$ was refined by Rietveld analysis. Some thermoanalytical data are given and magnetic properties were measured for LnONO$_3$ with Ln = Nd, Sm, Eu, and Gd.

Key words: Lanthanide Oxide Nitrates, LnONO$_3$, Structure Determination, Thermal Decomposition