

Synthesis and Structure of Sodium Tetraoxo Nitrido Molybdate, $\text{Na}_5\text{MoO}_4\text{N}$

Nachiappan Arumugam, Eva M. Peters, and Martin Jansen

Max-Planck-Institut für Festkörperforschung, Heisenbergstraße 1, D-70569 Stuttgart, Germany

Reprint requests to Prof. Dr. M. Jansen. Fax: +49-(0)711-6891502. E-mail: m.jansen@fkf.mpg.de

Z. Naturforsch. **59b**, 274 – 276 (2004); received December 22, 2003

The new oxynitride of molybdenum, $\text{Na}_5\text{MoO}_4\text{N}$ was prepared from stoichiometric mixtures of the starting materials MoO_2 , Na_2O_2 and NaN_3 which were heated in a special regime up to 500 °C, and cooled down slowly. Its crystal structure was solved and refined from single crystal data (orthorhombic, $Cmcm$, $a = 991.1(2)$, $b = 574.3(1)$, $c = 1067.7(2)$ pm, $R_1 = 0.0153$, $wR_2 = 0.0427$). The structure consists of isolated $[\text{MoO}_4\text{N}]^{5-}$ rectangular pyramids which are separated by Na^+ cations. This compound is structurally related to $\text{Na}_5\text{WO}_4\text{N}$ which crystallizes in space group $Cmc2_1$.

Key words: Sodium, Molybdenum, Oxynitrides, Structure Determination