# Synthesis and Crystal Structure Determination of a Guanidine Adduct of Sodium Guanidinate, $NaCN_3H_4(CN_3H_5)_2$

Veronika Hoepfner, Ulli Englert, and Richard Dronskowski

Institute of Inorganic Chemistry, RWTH Aachen University, Landoltweg 1, 52056 Aachen, Germany

Reprint requests to Prof. R. Dronskowski.
Fax: +49 (0) 241 80-92642.
E-mail: drons@HAL9000.ac.rwth-aachen.de

*Z. Naturforsch.* **2011**, *66b,* 975 – 978; received June 30, 2011

Well-grown single crystals of $NaCN_3H_4(CN_3H_5)_2$ were synthesized from guanidine and sodium hydride. The new compound crystallizes in the monoclinic space group $P2_1/n$ (no. 14) with $Z = 4$ and $a = 6.2007(4)$, $b = 9.6261(8)$, $c = 15.7630(11)$ Å and $\beta = 93.783(3)°$ at 293 K. The asymmetric unit comprises two sodium cations on special positions, one guanidinate anion and two symmetry-independent guanidine molecules. The structure is built up from columns of face-sharing $NaN_6$ octahedra oriented along the crystallographic *a* axis. The coordinating organic ligand anions and molecules are connected by hydrogen bonds from amino H atoms to imino N atoms to generate a tube-like motif. These tubes are then linked by two more hydrogen bonds to form a three-dimensional network.

*Key words:* Guanidinate, Guanidine Adduct, Sodium, Crystal Structure, Hydrogen Bonds