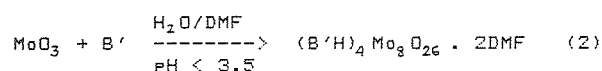
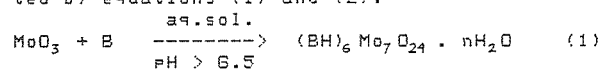


structure ($P2_1/n$, $a=12.969(7)$, $b=9.782(4)$, $c=8.517(4)$ Å, $\beta=106.31(4)$). The central unit is a onedimensional infinite chain $\frac{1}{2}[\text{Na}_2/\frac{1}{2}\text{NaCsGe}_4]$ which consists of linked cubanes $\{[\text{NaCsGe}_4] - \text{Na} - [\text{Ge}_4\text{CsNa}] - \text{Na}\}$ in trans-arrangement. A further Cs atom stays without direct contact to the Ge_4 -units and preserves again the composition MX. The structure of this compound is represented by the formula $\text{Cs}\frac{1}{2}[\text{CsNaNa}_2/\frac{1}{2}\text{Ge}_4]$.

- [1] L.M. Dennis and N.A. Skow, *J. Am. Chem. Soc.* **52**, 2369 (1930)
 [2] W. Klemm und E. Hohmann, "Alkalisilizide, Alkaligermanide, ihre Darstellung und einige wichtige Eigenschaften", Januar 1946
 [3] E. Busmann, *Z. Anorg. Allg. Chem.* **313**, 90 (1961)
 [4] J. Witte und H.G.v. Schnering, *Z. Anorg. Allg. Chem.* **327**, 260 (1964)
 [5] R. Nesper, H.G.v. Schnering, *Z. Krist.* **162**, 202 (1983)
 [6] J. Llanos, Dissertation, Universität Stuttgart (1984)

08.2-41 SYNTHESSES AND CRYSTAL STRUCTURES OF AMINOPYRIDINIUM POLYMOLYBDATES. By J. M. Gutiérrez-Zorrilla^a, P. Román^a, C. Esteban-Calderón^b, M. Martínez-Ripoll^b and S. García-Blanco^b. a) Dept. Química (Inorgánica) Univ. del País Vasco, Aptdo. 644, Bilbao, Spain, b) Dept. Rayos X, Instituto Rocasolano CSIC, Serrano 119, Madrid-6, Spain.

Aminopyridinium hepta- and octamolybdates have been prepared in aqueous or $\text{H}_2\text{O}/\text{DMF}$ solutions. Preparation of these compounds can be formulated by equations (1) and (2):



B = 2-aminopy (i), 3-aminopy (ii), 4-aminopy (iii), 2-amino-3-methylpy (iv), 2-amino-4-methylpy (v), 2-amino-5-methylpy (vi) and 2-amino-6-methylpy (vii)
 B' = 2-aminopy (viii). (py = pyridine)

Single crystals of (i), (iii), (iv), (vi) and (viii) have been obtained. Crystal data for (i) are: $(\text{C}_5\text{H}_7\text{N}_2)_6 \text{Mo}_7 \text{O}_{24} \cdot 3\text{H}_2\text{O}$ $a=14.8161(4)$, $b=17.5073(4)$, $c=20.8492(6)$ Å, $\beta=107.503(2)^\circ$, $V=5153.7(3)$ Å³, $Z=4$, $P2_1/n$, $D_0=2.15$ $D_x=2.17$ g cm⁻³, $R=0.030$, $wR=0.034$ for 4959 observed reflexions. The structure contains isolated $(\text{Mo}_7\text{O}_{24})_6^-$ anions linked to the 2-aminopyridinium cations and water molecules through hydrogen bonds of N-H...O and O-H...O type. Crystal structures of (iii), (iv), (vi) and (viii) are in progress.

08.2-42 SYNTHESIS AND CRYSTAL SYMMETRY OF A MONOCLINIC MODIFICATION OF $\text{MoO}_3 \cdot \text{H}_2\text{O}$. by J.L. Garin and M.A. Solar. Departamento² de Metalurgia, Universidad de Santiago de Chile, Santiago, Chile.

Molybdenum trioxide mono-hydrate is formed as an intermediate substance during thermal decomposition of some ammonium molybdates, the final product being anhydrous molybdenum trioxide. The compound has been reported in earlier literature, as having at least three different phases. The structure of the white modification or "α-molybdic acid", for instance, crystallizes with triclinic symmetry in the space group P1 (Bösch and Krebs (1975), *Acta Cryst.* **B30**, 1795).

The authors synthesized another modification of the compound, by leaching of molybdenite concentrate with nitric acid. Single crystals growing in well-shaped white needles were obtained. The chemical composition of the crystals, as determined by usual analysis techniques, was found to be very close to stoichiometry.

The crystal data for $\text{MoO}_3 \cdot \text{H}_2\text{O}$ were determined by recording three dimensional data on Weissenberg and Buerger precession photographs, using Ni-filtered Cu-radiation. The unit cell is monoclinic, with $a=9.720$ Å, $b=3.725$ Å, $c=7.179$ Å, $\beta=102.4^\circ$ and space group $P2_1/m$.

The calculated density, assuming four formula units in the unit cell, is 4.24 g cm⁻³. The measured value resulted to be 4.20 g cm⁻³.

From our results we can conclude that the compound under study discloses another white isomer of $\text{MoO}_3 \cdot \text{H}_2\text{O}$.

08.2-43 STRUCTURAL CHARACTERISTICS OF $\text{La}_2\text{Ge}^{\text{IV}}\text{Ge}^{\text{V}}\text{Ge}^{\text{VI}}\text{O}_9$ AND RELATIONSHIPS TO THE RARE EARTH ALUMINIUM GERMANATES OF THE TYPES $\text{RE}_2\text{Al}[\text{GeO}_4]_2\text{OH}$ AND $\text{REAlGe}^{\text{V}}\text{O}_5$. By K.-H. Klaska, M. Werk and O. Jarchow, Mineralogisch-Petrographisches Institut der Universität, Grindelallee 48, 2000 Hamburg 13, Germany.

Single Crystals of $\text{La}_2\text{Ge}^{\text{IV}}\text{Ge}^{\text{V}}\text{Ge}^{\text{VI}}\text{O}_9$ were synthesized hydrothermally at 800°C and 1500 bar. $\text{La}_2\text{Ge}^{\text{IV}}\text{Ge}^{\text{V}}\text{Ge}^{\text{VI}}\text{O}_9$ crystallizes in space group AI with $a=7.68_6$ Å, $b=5.71_2$ Å, $c=16.57_0$ Å, $\alpha=90.59^\circ$, $\beta=109.82^\circ$, $\gamma=88.72^\circ$ and $Z=4$. The direct method program MULTAN 80 was used for the structure determination. The structure is characterized by slightly distorted $[\text{GeO}_6]$ -octahedra, $[\text{GeO}_5]$ -tetragonal pyramids and $[\text{GeO}_4]$ -tetrahedra. To the best of our knowledge this is the first structure with three different coordination numbers of the Ge-atoms. The $[\text{GeO}_6]$ -octahedra join into chains parallel $[010]$ by sharing edges. Adjacent chains are cross-linked by pairs of edge-sharing tetragonal pyramids. In addition an inter-chain linkage is provided by insular $[\text{GeO}_4]$ -tetrahedra. The Ge-polyhedra form layers running in the a,b-plane. These layers are connected by La^{3+} -O bonds to a three-dimensional network. The new compound $\text{La}_2\text{Ge}^{\text{IV}}\text{Ge}^{\text{V}}\text{Ge}^{\text{VI}}\text{O}_9$ has a structure closely related to those of $\text{RE}_2\text{Al}[\text{GeO}_4]_2\text{OH}$ and $\text{REAlGe}^{\text{V}}\text{O}_5$ (Jarchow, Klaska, Werk, *Z. Krist.* (1982) **159**, 65-67). All three structures are based on straight chains of edge-sharing octahedra.