

(II) Keggin related anions: (1) $[\text{AsV}_{12}\text{O}_{40}(\text{As}^{\text{III}}\text{OH})_2]^{11-}$, space group $P\bar{4}3m$, $a=10.72(2)\text{\AA}$, $V=1231.8(9)\text{\AA}^3$, $Z=1$ R factor is 0.057; (2) $[\text{AsV}_{12}\text{O}_{40}(\text{VO})_2]^{6-}$, space group $F\bar{4}3d$, $a=24.707(7)$, $b=14.983(7)$, $c=24.455(8)\text{\AA}$, $V=15732(7)\text{\AA}^3$, and $Z=4$, R factor is 0.059.

(III) Strandberg-type anion: $[\text{Se}_2\text{Mo}_6\text{O}_{21}]^{4-}$, space group $P\bar{2}_1/n$, $a=9.851(2)\text{\AA}$, $b=23.224(5)\text{\AA}$, $c=10.456(3)\text{\AA}$, $\beta=114.13(2)^\circ$, $V=2183\text{\AA}^3$, and $Z=4$, R factor is 0.069.

(IV) Dawson-type anion: $[\text{H}_2\text{V}_2\text{W}_{10}\text{O}_{62}]^{4-}$, space group $R\bar{3}m$, $a=37.613(11)$, $c=12.972(7)\text{\AA}$, $V=15901(13)\text{\AA}^3$, and $Z=9$, R factor is 0.063.

(V) New type of high-nuclearity anions: (1) $[\text{Mo}_{27}\text{V}_6\text{O}_{183}(\text{NO})_6(\text{H}_2\text{O})_{18}]^{6-}$ (Zhang, Huang, Shao & Tang, J. Chem. Soc., Chem. Commun., 1993, 1, 37-38); (2) $[\text{H}_6\text{Mo}_{27}\text{Fe}_6\text{O}_{183}(\text{NO})_6(\text{H}_2\text{O})_{18}]^{6-}$, space group $P\bar{6}_3/mmc$, $a=23.847(4)$, $c=27.797(9)\text{\AA}$, $V=13685(7)\text{\AA}^3$, and $Z=2$, R factor is 0.049; (3) $[\text{H}_6\text{Mo}_{27}\text{Fe}_6\text{O}_{183}(\text{NO})_6(\text{H}_2\text{O})_{18}(\text{MoO})_2]^{6-}$, space group $P\bar{6}_3/mmc$, $a=23.868(6)$, $c=27.612\text{\AA}$, $V=13577\text{\AA}^3$, and $Z=2$, R factor is 0.058.



Fig. 1. Bright field micro - graph of amorphous Pb-oxides in Pb_2MoO_5 crystals.

Fig. 2. Bright field micro - graph of $\text{PbO}_{1.57}$ particle (1.5x0.4 microns). SAED from it - $[\bar{3}15]$ zone axis.

Fig. 3. Bright field micro - graph of Pb_3MoO_8 particle (0.7x0.7 microns). SAED from it - $[100]$ zone axis.

PS-08.04.40 PHASE INHOMOGENEITY OF Pb_2MoO_5 SINGLE CRYSTALS.

By D. D. Nihtianova*, S. S. Angelova, L. K. Djonev, L. L. Petrov and K. P. Petrov, Institute of Applied Mineralogy, Bulgarian Academy of Sciences Rakovski str., 92, 1000 Sofia, Bulgaria.

The existence of $\text{PbO}_{1.57}$ and Pb_3MoO_8 microphases in Pb_2MoO_5 crystals was not explained earlier (Nihtianova et al, SPOC, 1989, Budapest, Booklet, p.19). Pale yellow Pb_2MoO_5 crystals, obtained by Czochralski method at different conditions, were investigated by PDA (DRON 3M), STA (STA 1500), TEM (TEM 420 Philips) and SEM (SEM 515 Philips) in order to determine the origin of the additional solid state microinclusions in them. While searching for the optimal conditions of obtaining Pb_2MoO_5 nutrient in a solid state reaction of initial oxides $2\text{PbO} + \text{MoO}_3$ we found out by PDA, STA and EDAX, that: 1/ the synthesis of Pb_2MoO_5 is not carried out to the end; 2/ in some experiments the system is 2-phase: predominant Pb_2MoO_5 phase and PbO (massicot) and in others 3-phase: predominant Pb_2MoO_5 , PbO and Pb_3MoO_8 . These data indicated unambiguously, that the appearance of amorphous Pb-oxides (Fig. 1), $\text{PbO}_{1.57}$, (Fig. 2) and Pb_3MoO_8 (Fig. 3) in Pb_2MoO_5 crystals is directly connected with the phase composition of the starting nutrient.

PS-08.04.41

THE STRUCTURAL AND PHASE TRANSFORMATIONS OF GLAUCONITES IN Na-, Ca- AND Mg-CHLORIDE MEDIA UNDER HYDROTHERMAL CONDITIONS. By E.A.Giolo, K.A.Nauruzbaev, N.V.Kotov and V.A.Frank-Kamenetskii, Department of Crystallography, State University, St. Petersburg, Russia.

X-ray diffraction studies of the products of glauconite transformations with different octahedron layer compositions have been carried out in the presence of Na, Ca and Mg under pressure of $P(\text{H}_2\text{O}) = 1$ kbar at temperatures of 200-600°C under hydrothermal conditions in the three-days experiment. What is observed is that Fe and Fe-Mg-glaucanites are very similarly formed under any experimental conditions except the appearance of Ca-trioctahedral montmorillonite at $T=500^\circ\text{C}$ in the presence of CaCl_2 and of amphibole at $T=600^\circ\text{C}$ in the presence of NaCl. Therefore, it is interesting to compare the Al- and Fe-glaucanite behaviour. At the minimum experimental temperature $T=200^\circ\text{C}$, glaucanites are not changed. However, at the temperature $T=300^\circ\text{C}$ and in the presence of NaCl, CaCl_2 and MgCl_2 Fe- and Fe-Mg-glaucanites, unlike Al-glaucanites, start to become unstable and they transform into trioctahedral montmorillonite. The following conclusions can be drawn from the crystallochemical analysis of the initial, intermediate and final phases under the experiment conditions: First of all, the composition of octahedral layer of glaucanites definitely influence the transformational features under the mineralized hydrothermal condition. Fe-rich glaucanites are transformed at a lower temperature, beginning from $T=300^\circ\text{C}$. But at this temperature, the glaucanites rich in Al are characterized by higher stability, which start to transform only at $T=400^\circ\text{C}$. Secondly, the important features of structural transformation of glaucanites with the increase of the experiment temperature under hydrothermal conditions is the formation of expandable trioctahedral montmorillonites. This is connected with the existence of interchangeable Na, Ca, Mg in water medium, which functions as the expandable structural stabiliser. Thirdly, with the