NEW MINERAL NAMES*

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Microprobe analyses, using FeS$_2$ as standard, gave Fe$^{58.87, 51.74, 49.56, 44.99}$; S$^{40.57, 42.14, 42.50, 45.53}$, sum 99.45, 93.88, 92.06, 90.52 percent, ratio S/Fe = 1.20, 1.49, 1.76. Spectrographic analysis shows 0.00-0.06 percent Si, Cu, Ca, Al, Mg, etc. The strongest X-ray lines (28 given) are: 2.72 10 101; 2.44 33 111; 2.35 33 120; 1.94 7 121; 1.78 8 211. These are indexed on a unit cell with a 4.506, b 5.511, c 3.406 Å.

The mineral is abundant in ores of the Kakhetin deposit, replacing pyrrhotite and chalcopyrite, as veins and masses up to 0.2 cm. Color grayish-white, reflectance 41.44 percent, strongly anisotropic with color effects in brown-gray-yellow tones. Hardness high, but crumbles on strong pressure with a needle. Polishes well, shows a cleavage. Diamagnetic.

The mineral is intermediate in composition between pyrrhotite and Fe$_3$S$_4$, with X-ray data very close to that of marcasite. Since it might be a new mineral, the authors propose that in that case it be named alazanite for the Alazani River, Georgian S.S.R.

Discussion

The X-ray data differ very slightly from those usually given for marcasite. No explanation is given of the very unsatisfactory summations of the analyses; nor is it stated which analysis corresponds to the X-ray data. The name should not have been given.

Calciouranoite*


Analyses of a brown and an orange sample gave, resp., UO$_2$ 68.02, 71.78; PbO 2.37, 1.18; BaO 2.68, -; CaO 5.86, 6.77; As$_2$O$_3$ 0.63, -; Fe$_2$O$_3$ 0.71, -; Al$_2$O$_3$ 0.34', 0.69; Na$_2$O 0.60, -; K$_2$O 3.81, 0.06; H$_2$O$^-$ 7.05, 8.00; H$_2$O$^+$ 5.31, 3.03; SiO$_2$ 0.32, 4.00; sum 99.70, 96.05 percent, leading to the formula (Ca, Ba, Pb, K, Na) UO$_2$·5H$_2$O. The SiO$_2$ is present as quartz.

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Chrome Phlogopite


The mineral occurs in a metamorphic chromite deposit in Honan, central China. Analysis gave SiO$_2$ 38.59, Al$_2$O$_3$ 17.81, Cr$_2$O$_3$ 8.66, Fe$_2$O$_3$ 1.50, MgO 21.16, K$_2$O 10.15, Na$_2$O 0.05, H$_2$O 1.97, F 1.22, sum 101.11 — (O = F$_2$). 0.61 = 100.50 percent. Color emerald-green, G 2.78, Optically biaxial, negative, 2V = 0°, n$_s$ = 1.530, $\beta = \gamma = 1.595$ (all ±0.003).

Discussion

The name is transliterated in different places as calciouranoite, calciumuranoite, and caltsuranoite. Calciouranoite seems preferable and metacaltsuranoite should be given as metacalciumuranoite.

Kazakovite*


Analysis by M. E. Kazakova gave SiO$_2$ 52.44, TiO$_2$ 7.62, Nb$_2$O$_5$ 1.40, P$_2$O$_5$ 0.70, Al$_2$O$_3$ 0.84, Fe$_2$O$_3$ 2.30, MgO 0.10, MnO 4.40, CaO 0.40, Na$_2$O 25.50, K$_2$O 0.47, H$_2$O$^+$ 3.66, H$_2$O$^-$ 0.14, total 99.97 percent. Spectrographic analysis showed Be, Ta, Pb, Ga, V, Li, Cu, Sn, Ba, F. The analysis gives a cell content of (Na$_{0.51}$ K$_{0.07}$ Ca$_{0.06}$ Mg$_{0.05}$ Mn$_{0.06}$ Ti$_{0.04}$ Fe$_{0.19}$ Al$_{0.11}$ Nb$_{0.07}$) (Si$_{5.58}$ P$_{0.07}$) H$_{2}$O$_{18.39}$, or Na$_{3.5}$H$_{2}$Si$_{5}$O$_{19}$. The DTA curve shows an endothermic break at 760°C (fusion). The mineral loses 3.5 percent up to 520° (H$_2$O) and 5.5 percent more at 520-1030° (volatilization of Na$_2$O).

X-ray study shows the mineral to be rhombohedral, probable space group R3m, a 7.30 ± 0.03 Å, a 080°15', or in hexagonal setting a 10.18 ± 0.04, c 13.06 ± 0.05 Å. The strongest lines (27 given) are: 3.60 7 2022; 3.28 6 1123; 3.17 6 2133; 2.60 10 0224; 2.52 8 2240, 0115; 1.816 8 4044; 1.529 6 2028; 1.480 7 2464, 1347.
Palladoarsenide*

Microprobe analyses (4), using Pd, Au, Ag, and arsenopyrite as standards, gave (range and average) Pd 67.1-68.0, 67.55; Ag 3.0-3.5, 3.23; Au 1.0-1.8, 1.38; As 25.8-26.1, 25.95, sum 97.8-98.8, 98.11 percent, corresponding to Pd 1.83 Ag 0.09 Au 0.02 As 1.00, or Pd$_3$As. The mineral is not acted on by dilute HNO$_3$ or concd HCl or H$_2$SO$_4$. With concentrated HNO$_3$, it turns brown in 5 seconds.

X-ray study showed the mineral to correspond to the low-temperature modification of synthetic Pd$_3$As, which is monoclinic, space group $P2_1/m$. Unit cell parameters are: $a$ 9.25 $\pm$ 0.01, $b$ 8.47 $\pm$ 0.02, $c$ 10.44 $\pm$ 0.02 A, $\beta$ 94.0$, Z = 2$, G calc 10.42, meas 10.60. The strongest lines of the X-ray pattern (34 given) are: 2.60 7 004, 131; 2.35 6 114, 231; 2.31 6 400; 2.21 9 300; 2.514 (microfloat method). The strongest X-ray lines (49 given) are: 7.25 100; 5.23 55 110; 3.77 53 022, 231; 3.37 35 110; 2.93 313; 3.29 32 210; 3.23 101 121, 211; 2.552 37 124; 2.003 38 232, 322, 314, 225; 1.953 32 008.

The mineral occurs as light gray tabular crystals up to $5 \times 5 \times 1$ mm, as irregular grains, and as dense fine-grained aggregates. Color white, gray, cream; translucent to transparent, luster vitreous to pearly. Cleavages perfect (100), (010), (001). H 153-258 kg/sq mm (2-3 Mohs). The strongest lines of the X-ray pattern (37 given) are: 7.25 100; 5.23 55 110; 3.77 53 022, 231; 3.37 35 110; 2.93 313; 3.29 32 210; 3.23 101 121, 211; 2.552 37 124; 2.003 38 232, 322, 314, 225; 1.953 32 008.

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The mineral occurs in colorless transparent crystals up to 0.2 mm long and 0.1 mm in diameter. Luster vitreous H 3.5. Optically biaxial, positive. 2V very small. ns α = β = 1.510 ± 0.001, γ = 1.545 ± 0.001, r > v very weak. Z: c = 25°, elongation positive.

The mineral was found in a drill core at 400 m depth from the Solongo contact-metamorphic boron deposit, Buryat A.S.S.R. It forms nests in veinlets of saizbelyite, associated with carbonate, grossular garnet, and kurchatovite. Many other rare borates occur in the deposit. The name is for the deposit. Type material is at the Mineralogical Museum, Acad. Sci. USSR, Moscow.

Unnamed Sulfosalts of Ag, Pb, Bi


Analysis, after deducting FeS 0.34 percent, gave Ag 4.61, Cu more, Fe 0.15, Pb 35.47, Sb 4.57, Bi 38.10, S 16.41, sum 99.31 percent, corresponding to Ag,0.35Pb,35 Sb,35Bi,35Sn,35S,35. or nearly Ag,Pb (Bi,Sb) SnS.

The X-ray pattern (48 lines given) has strongest lines (analyzed sample): 3.42 10; 2.92 7; 2.77 5; 2.12 7; 2.05 4; this resembles the pattern of cosalite.

Steel-gray on fresh fracture. White in reflected light, no internal reflections. Reflectances were almost constant 400–700 nm, Rg 38.9–40.4, Rp 33.0–36.1 percent. Birefringence weak. Polysynthetic twinning. H 176.4–182.5 kg/sq mm with 5–20 g load, 159.2 with 50 g load. Brittle. G 7.08.

The mineral occurs in quartz veins of the Sokhondin deposits, along with bismuth jamesonite, molybdenite, and joseite; crystals do not exceed 0.1 mm in length.

NEW DATA

Montesite (PbSnS3)


The subsolidus phase relations of the system PbS-SnS was investigated by DTA, X-ray, and appearance of phase studies using both dry and hydrothermal annealing techniques. The appearance of phase data was refined with the electron microprobe. Galena can dissolve up to 2.5, 3, and 15 mole percent SnS at 300°, 400°, 700°, and 836°C respectively. A complete solid solution was found between teallite (PbSnS3) and herzenbergite (α-SnS) which extend to 50, 51, and 56 mole percent PbS at 25°, 400°, and 836°C respectively. The existence of this solid solution in nature was confirmed by microprobe analysis of natural specimens. The solid solution therefore precludes the existence of montesite (PbSnS3) as a valid mineral species. Montesite is actually a Pb-bearing variety of herzenbergite.

Abstractor's Note:
The findings of these authors that a complete solid solution exists between teallite and herzenbergite has been confirmed by Chang and Brice (1971), Mineral. Mag., 38, 186. Since the solid solution definitely includes montesite, PbSnS3 (Am. Mineral. 35, 334, 1950) the name should be discarded, as suggested by these authors.

Robert W. Potter, II