NEW MINERAL NAMES*

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Bariosincosite*


The mineral occurs as irregular clusters of radiating to divergent platy crystals, each crystal up to 250 μm across and 5 μm in thickness, on cuprite or native copper within cavities in a quartz-goethite host. Electron microprobe analysis gave BaO 23.20, SrO 0.20, CaO 0.03, VO 2 31.55, Fe 2 O 3 0.20, Al 2 O 3 0.50, P 2 O 5 28.15, and 2.375(70,313,115), and 2.022(50,420,332,116).

Electron microprobe analysis of the mineral from the type locality gave a mean and range (16 analyses) of CaO 12.18 (11.94–12.43), NiO 5.76 (4.04–7.28), CoO 15.70 (14.24–16.50), Fe 2 O 3 11.53 (10.21–12.25), As 2 O 5 49.36 (45.52–51.02), H 2 O (calc.) 6.39, sum 100.92 wt%, corresponding to Ca 0.00 (Co 0.97 Fe 0.67 Ni 0.36 ) 2(AsO 4 ) 2(OH,H 2 O) 2 , a new mineral from Schneeberg, Germany. Neues Jahrb. Mineral. Mon., 505–517.

*Before publication, minerals marked with an asterisk were approved by the Commission on New Minerals and Mineral Names, International Mineralogical Association.
Coparise*

The mineral occurs as tabular crystals, to 0.1 × 0.2 × 0.4 mm, included within euhedralite. Electron microprobe analysis gave Cu₃O₃FeO.17, AsO.15, V₄O₇SO.07, SO.05, Cl 0.47, O ≡ Cl 1.91, sum 99.55 wt%, corresponding to Cu₃Fe₀.04O₀.04[(As₀.60, V₀.38, S₀.03)O₄]Cl₁.07. Crystals are tabular plates on (100), elongate [010], with well-developed [100, 110], and [011]. Black or dark gray color, metallic luster, brown streak, very brittle, H undetermined, perfect (100) cleavage, nonfluorescent, stable at room temperature, transparent, good cleavage in one direction, white streak, very poor luster, {110}, and {101}. Black or dark gray color, metallic luster, biaxial positive, D calc = 4.76(1) g/cm³ for Cu₃.89 Fe₀.01 O₁.93 [(As₀.60, V₀.38, S₀.03)O₄]Cl₁.07. Crystals are tabular plates on (100), elongate [010], with well-developed [100, 110], and [011]. Black or dark gray color, metallic luster, brown streak, very brittle, H undetermined, perfect (100) cleavage, nonfluorescent, stable at room temperature, D calc = 3.17 g/cm³ for Z = 4. Single-crystal X-ray structure study (see Am. Mineral., 84, p. 1685, 1999) indicated orthorhombic symmetry, space group Pbcm, a = 5.440(1), b = 11.154(2), c = 10.333(2) Å. Strongest lines of the powder pattern (57 mm Debye-Scherrer, CoKα radiation) are 4.69(40, 110), 3.03(60, 310), 2.62(100, 312), and 2.39(40, 022, 221).

The mineral is associated with euhedralite, tobachite, kambokhitite, klyuchevskite–alumoklyuchevskite, and ponomarevite in fumarolic deposits at the Tolbachik Great fissure eruption, Kamchatka Peninsula, Russia. The new mineral name alludes to the composition copper, arsenic. Type material is in the Mining Museum of the Saint Petersburg Mining Institute, Russia. J.L.J.

Itoigawaite*

The average of seven listed electron microprobe analyses is SiO₂ 32.98, TiO₂ 0.25, Al₂O₃ 27.67, FeO 0.10, MgO 0.11, CaO 0.46, SrO 0.21, Ce₂O₃ 0.18, SiO₂ 43.70, TiO₂ 0.11, ZrO₂ 10.62, HfO₂ 0.18, Nb₂O₅ 1.33, Ta₂O₅ 0.02, WO₃ 0.80, Cl 0.37, O (calc.) 0.87, O ≡ Cl 1.625(4); moderately pleochroic, ε = 1.625(5); moderately pleochroic, O = yellow-orange, E = pale yellow. Single-crystal X-ray structure study (R = 0.049) indicated trigonal symmetry, space group R₃m, α = 14.2959(8), c = 0.0384(3) Å. The powder pattern is like that of manganokhomyakovite. Associated minerals are aluminite, annite, calcite, natrolite, pyrite, and titanite. The new name is for mineralogist Alexander P. Khomyakov (b. 1933), who has contributed extensively to studies of alkaline rocks.

Khomyakovite, manganokhomyakovite*

The minerals occur as orange to orange-red, pseudo-octahedral crystals in miarolitic cavities in nepheline syenite at the Poudrette quarry, Mont Saint-Hilaire. Vitreous luster, transparent to translucent, brittle, white streak, no cleavage or parting, uneven fracture, H = 5–6, nonfluorescent.

Khomyakovite
Only two crystals, <0.5 mm in diameter, have been found. Electron microprobe analysis gave Na₂O 11.35, K₂O 0.52, MgO 0.04, CaO 10.42, MnO 1.63, FeO 4.33, Al₂O₃ 0.09, La₂O₃ 0.21, Ce₂O₃ 0.18, SiO₂ 43.70, TiO₂ 0.11, ZrO₂ 10.62, HfO₂ 0.18, Nb₂O₅ 1.33, Ta₂O₅ 0.02, WO₃ 0.80, Cl 0.37, O (calc.) 0.87, O ≡ Cl 1.62(2), sum 98.37 wt%, corresponding to (Na₁₂.39K₀.38Ca₁₃.33Sr₀.₁³Where k reflects to the locality. Type material is in the National Science Museum, Tokyo, and at the Fossa Magna Museum, Itoigawa, Niigata, Japan. J.L.J.

Manganokhomyakovite
Crystals are up to 5 mm and show {0001},{1120},{0221}, {1011} and {01T2}. D mean = 3.13(3), D calc = 3.17 g/cm³ for Z = 3. Uniaxial negative, α = 1.629(1), ε = 1.626(2), moderately pleochroic, O = orange-yellow, E = yellow. Electron microprobe analysis gave Na₂O 10.37, K₂O 0.41, CaO 10.20, MnO 4.21, Fe₂O₃ 2.58, SrO 9.17, Al₂O₃ 0.02, La₂O₃ 0.12, Ce₂O₃ 0.20, SiO₂ 42.92, TiO₂ 0.20, ZrO₂ 10.43, HfO₂ 0.17, Nb₂O₅ 1.58, Ta₂O₅ 0.03, WO₃ 4.48, Cl 0.84, H₂O (calc.) 0.83, O ≡ Cl 0.19, sum 98.45 wt%, corresponding to (Na₁₂.₃₉K₀.₃₈Ca₁₉.₃₃Sr₀.₁³Where k refers to the locality. Type material is in the National Science Museum, Tokyo, and at the Fossa Magna Museum, Itoigawa, Niigata, Japan. J.L.J.


The average of seven listed electron microprobe analyses is SiO₂ 32.98, TiO₂ 0.25, Al₂O₃ 27.67, FeO 0.10, MgO 0.11, CaO 0.46, SrO 0.21, Ce₂O₃ 0.18, SiO₂ 43.70, TiO₂ 0.11, ZrO₂ 10.62, HfO₂ 0.18, Nb₂O₅ 1.33, Ta₂O₅ 0.02, WO₃ 0.80, Cl 0.15, sum 98.37 wt%, corresponding to Na₁₂.₂₃K₀.₃₈Ca₁₉.₃₃Sr₀.₁³Where k refers to the locality. Type material is in the National Science Museum, Tokyo, and at the Fossa Magna Museum, Itoigawa, Niigata, Japan. J.L.J.

Khomyakovite, manganokhomyakovite *
Laforêtite*


The mineral occurs as anhedral inclusions, <30 µm, in galena. The mean of eight listed electron microprobe analyses for two grains is Ag 37.68, Cu 0.04, In 22.42, Se 0.01, sum 100.39 wt%, corresponding to Ag₀.₉In₁₆S₂₀₀₀. The synthetic analog is megascopically brown, metallic luster, chocolate-brown streak, VHN₁₀₀ = 183 (176–193), no cleavage, Dcalc = 4.93(1) g/cm³ for Z = 4. In reflected light in oil, the mineral is brownish gray, weakly pleochroic from brown to brown-gray, strongly anisotropic, polarization colors brick-red to berry-red internal reflections, typically polysynthetically twinned. Mean reflectance percentages are given in 20 nm steps from 440 to 700 nm; representative values are 26 (480 nm), 24.6 (580), and 24.2 (660). X-ray microdiffractometry of a single crystal from 400 to 800 nm; representative values are 26 (480 nm), 24.6 (580), and 24.2 (660). X-ray microdiffractometry of an in-situ grain, 20 × 30 µm, gave 11 diffraction lines, and these agree with data for synthetic tetragonal AgInS₂; refinement of the powder pattern gave a = 5.880(2), c = 11.211(1) Å, possible space group I4d2. The synthetic analog has strongest lines of the powder pattern (114 mm Gandolfi, Cu radiation) are 3.01(87,411), 2.942(80,200), 2.082(75,220), 2.030(75,204), and 1.768(80,312).

The mineral, which is the Ag analog of roquesite, occurs in a hand-size specimen of galena collected from vein material in the dumps of the former Montgros Pb-Zn mine near Langeac, Haute-Loire, France; also reported to occur with hocalite and pyrrargyrite at the Toyoha mine, Hokkaido, Japan (Am. Mineral., 80, p. 406, 1995). The new name is for Claude P. Laforêt (b. 1936), metallographer at BRGM, France. Type material is in the Geological Museum of Lausanne, Switzerland, and in the Museum National d’Histoire Naturelle in Paris, France. J.L.J.

Nabiasite*


The mineral occurs as dark red, anhedral grains, up to 100 µm in diameter. Electron microprobe analyses gave SrO 0.07, As₂O₅ 6.03, V₂O₅ 35.91, BaO 11.83, MnO 47.92, H₂O (calc.) 1.36, sum 103.12 wt%, corresponding to Ba₁₁₀[(Mn₉₂Sr₀.₈)V₈As₈O₃]OH₂. Transparent, vitreous luster, conchoidal fracture, no cleavage, dark yellow streak (almost orange), VHN₃₅ = 465 (363–536), Dcalc = 4.31–4.33 g/cm³ for the ideal formula with V/(As + V) = 0.853–0.899 and Z = 4. Optically isotropic to slightly anisotropic, n = >2.0. Single-crystal X-ray structure study (R = 0.0263) indicated cubic symmetry, space group Pa₃, a = 12.832(2) Å. Strongest lines of the powder pattern (114 mm Gandolfi, FeKα radiation, calculated intensities) are 3.01(87,411), 2.790(100,241), 2.608(100,422), 2.332(44,521), and 2.134(53,600).

The mineral occurs in veinlets, <2 mm wide in the holotype specimen, that variably also contain rhodochrosite, friedelite, welinite, barite, and other minerals. The veinlets cut Mn ores at the historic Pla de Labasse deposit near the hamlet of Nabias (hence the new mineral name). Formation of the veinlets is attributed to hydrothermal remobilization that accompanied intrusion of Hercynian granite. Type nabiasite is in the Musée Cantonal de Géologie at Lausanne, Switzerland. J.L.J.

Nickelphosphide*


The mineral is present in numerous iron meteorites: Butler (holotype specimen), Cañon Diablo, Carlton, Edmonton (Kentucky), Kenton County, Lenarto, Monahans, Oktibbeha County; also in the Efremovka carbonaceous chondrite, and in an unnamed ataxite (Aldar River, 1997). In the Butler meteorite, the mineral occurs as idiomorphous isometric grains, to 30 µm, in kamacite lamellae (type 1), and as xenomorphic elongate inclusions, up to 200 µm long, in the larger kamacite spindles (type 2). Electron microprobe analyses of seven type 1 and seven type 2 grains gave means of Fe 33.4, 35.3, Ni 52.9, 49.6, Co 0.0, 0.2, P 14.6, 15.3, sum 100.9, 100.6 wt%, corresponding to (Ni₁.₈₃Fe₁.₂₁Co₀.₀₁)P₀.₉₆ and (Ni₁.₇₇Fe₁.₂₄Co₀.₀₁)P₀.₉₆. Opaque, no cleavage, brittle, no internal reflection, VHN₃₅ = 874 (841–905), Dcalc = 7.61 g/cm³ for Z = 8. In reflected light, white with a pink-yellow tint; no anisotropy observed in air, but weakly anisotropic in yellowish-pinkish colors in oil (n = 1.515), no bireflectance. Reflectance percentages (SI standard, air) are given in 20 nm steps from 440 to 700 nm; representative Rₘax and Rₘin values are 44.6, 43.0 (480), 48.3, 46.8 (560), 49.1, 47.6 (580), and 52.5, 51.3 (660). Indexing of the X-ray powder pattern, by analogy with those of synthetic Fe₃P and Ni₃P, conforms to tetragonal symmetry, space group I₄, a = 8.99(1), c = 4.396(7) Å. Strongest lines of the X-ray powder pattern (114 mm Debye-Scherrer, Fe radiation) are 2.48(20,031), 2.17(100,321), 2.13(50,330), 2.08(50,112), 2.01(20,420), and 1.995(70,411).

The mineral is associated with kamacite, taenite, carlsbergite, schreibersite, and baringerite. The new name alludes to the composition. Type material is in the Mining Museum of the Saint Petersburg Mining Institute, Russia. V.A.K.
Palladodymite*


The mineral occurs as inclusions, up to 30 × 70 μm, in native ruthenium. Electron microprobe analysis (average and range of four) gave Ru 2.4 (2.1–2.8), Rh 27.6 (26.7–28.9), Pd 33.5 (32.3–34.4), Ir 1.7 (1.3–2.0), Os 1.0 (0.7–1.3), Pt 4.4 (3.7–5.1), Ni 3.0 (2.8–3.1). As 26.5 (26.1–27.0), sum 100.1 wt%, corresponding to (Pd₀.₀₂Rh₀.₇₇Ni₀.₁₃Ru₀.₀₇Pt₀.₀₆Ir₀.₀₃Os₁₀.₀₂)₂₀As₁₀, simplified as (Pd,Rh)₃As. Opaque, no cleavage or parting, brittle, VHNₕ₂₀ = 566 (546–611), Dₜₚₐₜ = 11.3 g/cm³ for Z = 4.

Reflected light, brownish gray with a bluish tint, distinctly anisotropic from bluish gray to reddish brown. Reflectance percentages (Si standard, in air) are given in 20 nm steps from 400 to 700 nm; representative Rₚₜₐₜ and Rₕₐₜ values are 51.6, 45.8 (480), 54.8, 46.9 (560), 56.2, 48.0 (580), and 59.1, 50.2 (660). The X-ray powder pattern is similar to that of the synthetic analog, space group Imma, a = 4.272, b = 4.118, c = 14.02 Å, Z = 4. Strongest lines of the powder pattern (57 mm camera, Fe radiation) are 3.49(30,004), 3.13(20,103), 2.76(100,112), 2.32(50,105,006), 2.13(30,200), 2.10(50,020), 1.908(30,211), 1.867(30,121), 1.841(50,116), 1.813(40,204,107), and 1.296(20,132).

(Al,Fe)Si

The mean of three electron microprobe analyses listed is La 3.68, Ce 7.90, Pr 1.03, Nd 0.25, Gd 0.63, Si 32.63, Fe 32.34, Al 17.29, Ca 1.85, sum 100.00 wt%, corresponding to La₀.₃₈Ce₀.₈₈Pr₀.₇₃Nd₀.₃₂Gd₀.₃₀Ca₀.₀₉Si₁.₆₁Fe₂.₃₄Al₁.₆₄ or (Al₀.₅₅Fe₀.₄₅)ₓSi₁.₆₁. Diamond. Opaque, no cleavage or parting, brittle. VHNₕ₁₀ = 872 (845–893). Pink in reflected light, isotropic. Reflectance percentages (Si standard, in air) are given in 20 nm steps from 400 to 700 nm; representative R values are 46.7 (480), 48.9 (560), 49.0 (580), and 49.3 (660). Other physical properties are not described.

FeSi₂

The mean of two electron microprobe analyses listed is La 0.46, Ce 1.12, Pr 0.14, Nd 0.25, Gd 0.07, Si 50.97, Fe 44.98, Al 2.06, Ca 0.01, sum 100.00 wt%, corresponding to REE₀.₃₁Si₁.₆₁Fe₉.₃₁Al₇.₃₀ or (Fe₉.₃₁Al₇.₃₀)ₓSi₁.₆₁. Diamond. Opaque, no cleavage, VHNₕ₁₀ = 872 (845–893). Pink to light gray color in reflected light, distinctly anisotropic, weakly bireflectant. Reflectance percentages (Si standard, in air) are given in 20 nm steps from 400 to 700 nm; representative R values are 42.5, 44.5 (480), 43.1, 43.4 (560), 43.4, 43.1 (580), and 45.3, 42.0 (660). Other physical properties are not described.

Discussion. In the opinion of the authors, the natural origin of these phases remains questionable. For other reports of the natural occurrence of silicides, see Am. Mineral., 76, p. 301 (1991); 77, p. 1118 (1992); “ferdisilicate” FeSi₂, 79, p. 188 (1994). V.A.K.
= 8.37–8.38, c = 6.50–6.52 Å, β = 112.78–112.88°, isostructural with titanite. Results for a single inclusion of the CaSiO₃ mineral showed it to be triclinic, space group P1̅, a = 6.5894, b = 9.2089, c = 6.5485 Å, α = 83.76, β = 77.30, γ = 70.06°, isostructural with walstromite. J.L.J.

New data

Kettnerite


Single-crystal X-ray structure study (R = 0.016) of kettnerite, CaBi(CO₃)OF, gave a new orthorhombic cell with a = 3.7976(5), b = 3.7976(5), c = 13.569(4) Å, space group Pmmn, Z = 2. The mineral has previously undetected merohedral twinning.

Discussion. D(calc) = 5.837 g/cm³ for the ideal formula, in good agreement with D(meas) = 5.80 g/cm³. J.L.J.

Labuntsovite group


Numerous single-crystal X-ray structure studies of the labuntsovite group, which is monoclinic whereas the nenadkevichite group is orthorhombic, have established the formula to be A₁₄A₂₄A₃₄₋ₓ[M₂ₓ(H₂O)₂ₓ][M₁₈(O,OH)₈][Si₄O₁₂]₄·nH₂O, where 0 < x < 2, n = 8, and A₁ = Na,Ca,□; A₂ = K, Na, H₂O, □; A₃ = K, Ba, Sr, H₂O, □; M₁ = Ti, Nb; M₂ = Mn²⁺, Fe²⁺, Mg, Zn, □. Cation proportions are listed for 44 samples, and it is already evident that unnamed minerals are present within the group.

Discussion. Because of the large number of distinct sites, the potential for the introduction of a substantial number of new mineral names is there; it is to be hoped, however, that some type of simplified nomenclature system which avoids trivial names will be adopted for the group. J.L.J.

Discredited Minerals

Coutinite, coutinhite, neodymite


Coutinite, coutinhite, and neodymite were introduced as mineral names in 1981 without CNMMN approval. Optical, chemical, and X-ray powder data indicate that the minerals are identical to lanthanite-(Nd) and lanthanite-(La). The CNMMN has approved the discreditations. J.L.J.