

## NEW MINERAL NAMES

### Cafetite

A. A. KUKHARENKO, V. V. KONDRAT' EVA, AND V. M. KOVYAZINA. Cafetite, a new hydrous titanate of calcium and iron. *Zapiski Vses. Mineralog. Obshch.*, **88**, No. 4, 444-453 (1959) (in Russian).

Analysis of the mineral gave TiO<sub>2</sub> 54.11, Al<sub>2</sub>O<sub>3</sub> 2.02, Fe<sub>2</sub>O<sub>3</sub> 22.00, FeO 0.49, MgO 1.44, MnO 0.20, CaO 6.23, Na<sub>2</sub>O 0.28, K<sub>2</sub>O 0.40, H<sub>2</sub>O<sup>+</sup> 8.83, H<sub>2</sub>O<sup>-</sup> 3.46, sum 100.46%, corresponding to (Ca, Mg) (Fe, Al)<sub>2</sub> Ti<sub>4</sub>O<sub>12</sub> 4H<sub>2</sub>O. Spectrographic analysis showed also V~0.03, Zr 0.001-0.003, Nb 0.003-0.01, and Y~0.1%. A dehydration curve shows that about one-fourth of the water is lost below 120°, about one-half at 200-300° and the remainder up to 650°. Insoluble in HCl and HNO<sub>3</sub>, decomposed by boiling concentrated H<sub>2</sub>SO<sub>4</sub>. Fusible in the reducing flame to a dark brown, weakly magnetic mass.

Crystals of cafetite are columnar to acicular, elongated along (001), and are striated on the prism faces. The dominant forms are {100}, {520}, and {210}, also noted {320}, {310}, {410}, {610}, {810}, {052}, and {801}. Goniometric data are given; the measurements were not very satisfactory.

Laue and rotation photographs indicated orthorhombic symmetry, (but the optics disagree), with *a* 31.34, *b* 12.12 ± 0.03, *c* 4.96 ± 0.01 kX, *a*:*b*:*c* 2.5858:1:0.4092, *Z*=6. Unindexed *x*-ray powder data are given (25 lines); the strongest lines are 7.84 (10), 3.26 (8), 2.557 (8), 1.910 (7). Cleavage prismatic, in two directions.

The mineral is pale yellow to colorless, luster adamantine. Hardness 4-5, brittle, but needles show elasticity. *G.* 3.28 (measured), 3.19 (calcd). Optically biaxial, negative, with *n<sub>s</sub>*, *α* 1.95, *β* 2.08, *γ* 2.11. *Z*:*c*=2-4°, hence the mineral is monoclinic. Dispersion strong.

The mineral is one of the last minerals to form in miarolitic cavities in pegmatites cutting the Afrikanda pyroxenite massif, Kola Peninsula, U.S.S.R. Associated minerals include titanomagnetite, phlogopite, ilmenite, sphene, clinchlore, dysanalyte, baddeleyite, anatase, and an unidentified mineral (see page 479). Cafetite forms tangled fibrous aggregates and radial-fibrous aggregates of acicular crystals.

The name is for the chemical composition.

MICHAEL FLEISCHER

### Calcioalc

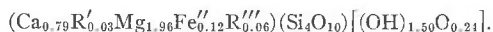
D. P. SERDYUCHENKO. Calcioalc, a new mineral. *Zapiski Vses. Mineralog. Obshch.*, **88**, 298-304 (1959) (in Russian).

N. V. BELOV. On the calcioalc of D. P. Serdyuchenko. *Ibid.*, 305-30i (1959) (in Russian).

Hydrothermal alteration of diopside-actinolite of Archean rocks in the basin of the Leglier River, Aldan Region, southern Yakutia, has caused the formation of a peculiar talc (calcioalc) as partial or complete pseudomorphs after actinolite. The contact with actinolite is sharp. Also present in greater abundance is normal talc; the transition of calcioalc into the normal talc is gradual.

Analyses by V. A. Yusova are given of the actinolite, calcioalc, and talc.

The analysis of calcioalc corresponds to the formula



The mineral has columnar structure (preserved from the actinolite), is dense and comparatively hard (between 2 and 3). It is greenish-gray with silky to pearly weak luster. In thin section it is colorless (the actinolite is colored and pleochroic), optically biaxial, negative, 2 *V* small, extinction parallel on *Z*, *n<sub>s</sub>* *α* 1.565, *γ* 1.583, both ± 0.001.

	1 <i>Actinolite</i>	2 <i>Calcioctalc</i>	3 <i>Talc</i>
SiO <sub>2</sub>	50.94	60.94	58.68
TiO <sub>2</sub>	0.16	Trace	0.04
Al <sub>2</sub> O <sub>3</sub>	4.82	0.23	1.15
Fe <sub>2</sub> O <sub>3</sub>	1.40	0.80	1.23
FeO	7.30	2.16	3.85
MnO	0.11	0.04	0.01
MgO	18.65	20.00	27.26
CaO	12.71	11.18	1.43
Na <sub>2</sub> O	0.58	0.29	0.18
K <sub>2</sub> O	0.80		
CO <sub>2</sub>	None	None	None
F	1.18	—	—
Cl	0.16	—	—
H <sub>2</sub> O <sup>+</sup>	0.91	3.40	5.10
H <sub>2</sub> O <sup>-</sup>	0.24	0.98	1.11
BaO	0.04	—	—
Li <sub>2</sub> O	0.05	—	—
	100.05	100.02	100.04
—(O=F <sub>2</sub> Cl <sub>2</sub> )	0.53		
	99.52		

The *x*-ray powder diagram by V. G. Muraveiska is similar to that of talc, but with larger spacings; the strongest lines are 9.25 (9), 3.079 (9), 1.518 (6), 2.469 (5b).

Below compares the compositions and structures of the minerals:

Talc	Mg <sub>3</sub>	Si <sub>4</sub> O <sub>10</sub> (OH) <sub>2</sub>
Calcioctalc	CaMg <sub>2</sub>	Si <sub>4</sub> O <sub>10</sub> (OH) <sub>2</sub>
Margarite	CaAl <sub>2</sub>	(Si <sub>2</sub> Al <sub>2</sub> )O <sub>10</sub> (OH) <sub>2</sub>

and argues that calcioctalc is related more closely to margarite than to talc, as shown especially by the hardness. He points out that the name may therefore not be a suitable one.

DISCUSSION.—Detailed structural analysis of calcioctalc and margarite would be highly desirable.

M. F.

### Ikunolite

AKIRE KATO. Ikunolite, a new bismuth mineral from the Ikuno Mine, Japan. *Mineralogical Journal (Japan)*, 2, No. 6, 397-407 (1959).

Analysis by T. Katsura on a small amount of hand-picked material gave Bi 79.69, S 8.89, Se 1.98, Rem. (=ferberite and quartz) [9.44], sum [100.00%]. Minor amounts of Ag and Te (probably less than 0.1%) were detected by *x*-ray spectrography. The analysis gives Bi:S:Se—3.79:2.76:0.24 or Bi<sub>4</sub>(S, Se)<sub>3</sub>.

Laue and oscillation photographs show ikunolite to be rhombohedral, space group  $D_{3d}^{6}-R\bar{3}m$ ,  $a_{rh}=13.28 \text{ \AA}$ ,  $\alpha 18^{\circ}00'$ ,  $Z=1$ ; hexagonal lattice,  $a 4.15$ ,  $c 39.19 \text{ \AA}$ ,  $Z=3$ . Cleavage basal, perfect. Indexed *x*-ray powder data are given; the strongest lines are 3.022 (100), 2.205 (30), 6.56 (20), 3.536 (20), 2.076 (20), 1.865 (20). The structure is worked out in detail.

The mineral is lead gray, streak dark gray, luster metallic. *G.* 7.8 (measured), 7.97 (cold), *H.* 2, very flexible. In polished section white with faintly creamy tint, nearly isotropic in basal section, moderately anisotropic pale gray to gray in diagonal section. Etch tests are given.

The mineral occurs in a quartz vein from the Ikuno Mine, Hyōgo Prefecture, Japan, associated with ferberite, bismuth, and bitmuthinite, with some cassiterite.

It is very close in crystallographic and physical properties to joseite A (Thompson, *Am. Mineral.* **34**, 342–382 (1949)); it is to be classed with the tetradymite group.

The name is for the mine.

M. F.

### Strontioginorite

OTTO BRAITSCH.—Über Strontioginorit, ein neue Ginorit—Variatät aus dem Zechsteinsalz. *Beitr. Mineral. u. Petrog.*, **6**, 366–370 (1959).

The mineral was found in the water-insoluble residues of the “Old Halite” bed (NaCl about 96%, anhydrite 2–4%) from the Königshall-Hindenburg potassium mine at Reyershausen, northern Germany. It forms crystals up to 3 mm. long, 1 mm. wide, and 0.5 mm. thick, but most are much smaller.

There was insufficient material for analysis. Spectrographic study showed B, Sr, and Ca major; *x*-ray fluorescence analysis indicated SrO 10–20%. Assuming the formula (Sr, Ca)<sub>2</sub>B<sub>14</sub>O<sub>23</sub>·8H<sub>2</sub>O, the molecular weight calculated from the unit cell and specific gravity gave Sr:Ca about 1.3:0.7.

The crystals are tabular, dominant forms are (110), (010), and (111); also noted were (001), (100), (250), (131), (141), and doubtfully (151). Rotation and Weissenberg photographs gave: Monoclinic, space groups *P*2<sub>1</sub>/*a*—*C*<sub>2h</sub>, *a* 12.85, *b* 14.48, *c* 12.84, all ±0.01 Å, β 101°35′ ± 10′, *Z* = 4. Cleavage (010) perfect and easy, (001) very good. The crystals are easily deformed. Indexed *x*-ray powder data are given; the strongest lines are 7.25 vs, 2.10 s, 5.40 m, 3.92 m, 3.34 m, 1.19 m.

The mineral is colorless, transparent, with silky luster. Hardness 2–3, *G.* (suspension) 2.25. Optically biaxial, positive, *n<sub>s</sub>* (Na), α 1.512, β 1.524, γ 1.577, all ±0.003, 2*V* 53°, *Y* = *b*.

Braitsch points out that the unit cell and indices of refraction are very close to those given for the KSr borate volkovite, see *Am. Mineral.*, **40**, 551–552 (1955).

DISCUSSION.—If Sr > Ca, this is not a variety of ginorite, but its strontium analogue.

M. F.

### Sulunite

A. A. NYRKOV. Sulunite—a new mineral of the ferriferous chlorites. *Zapiski Vses. Mineralog. Obschch.*, **88**, 571–577 (1959) (in Russian).

Analysis by P. P. Ovcharenko gave SiO<sub>2</sub> 40.31, Al<sub>2</sub>O<sub>3</sub> 28.69, total iron as Fe<sub>2</sub>O<sub>3</sub> 12.82, MgO 0.52, CaO 0.15, K<sub>2</sub>O 4.00, Na<sub>2</sub>O 3.16, SO<sub>3</sub> 0.77, loss on ignition 7.82, sum 98.24%. Qualitative tests showed FeO to be present; an exothermal break at 460° with a gain in weight is interpreted as showing that approximately all the iron is ferrous. The analysis should also be corrected for 0.27% calcite, 1% carbonaceous matter, and 1.34% pyrite. A dynamic loss of weight curve shows losses in weight: 0–200° 1.86%, 200–350° 0.83%, 350–450° 0.83%, 450–480° 1.10% (gain) 480–720° 7.18%, 720–900° 0, 900–950° 0.55%. A D.T.A. curve showed endothermal breaks at 50–200°, 600°, and 930° (calcite), exothermal breaks at 300° and 460°.

The mineral is greenish, fibrous, soft and greasy to the touch. *G.* 2.95. One good cleavage. Optically biaxial, negative, *n<sub>s</sub>* α 1.574, β 1.595, γ 1.598, 2*V* 42°, extinction along fiber parallel, elongation positive. Absorption X > Y > Z, dispersion weak.

X-ray powder data (27 lines) are given; the strongest lines are 7.08 (10), 13.4 (7, broad), 4.68 (7), 3.313 (6), 2.795 (6), 1.530 (6), 7.35 (5), 7.14 (5), 3.51 (5), 1.493 (5). The pattern resembles those of sheridanite and leuchtenbergite, given for comparison.

The mineral occurs in shales and sandstones as thin incrustations on fossil plants; it is always associated with carbonaceous matter. Found in a number of drill cores from the Sulinsk region, Donetz Basin, U.S.S.R.

It is similar to the chlorites in x-ray pattern, but differs in the low Mg and high alkali content, and in having high birefringence. It differs chemically and in x-ray pattern from gumbelite.

The name is for the Sulinsk region.

DISCUSSION.—Needs further study. The analysis is unsatisfactory; both FeO and Fe<sub>2</sub>O<sub>3</sub> are likely to be present and the summation is very low. Must be proved not to be a mixture.

M. F.

### Yoshimuraite

TAKEO WATANABE. The minerals of the Noda-Tamagawa Mine, Iwate Prefecture, Japan.

I. Notes on geology and paragenesis of minerals. *Mineralogical Journal (Japan)*, 2, 408–421 (1959).

The name and formula (Ba, Sr)<sub>4</sub>Mn<sub>4</sub>Ti<sub>2</sub>(SiO<sub>4</sub>)<sub>4</sub>[(P, S)O<sub>4</sub>]<sub>2</sub>(OH, Cl)<sub>3</sub> are given for a mineral occurring in peculiar pegmatitic rocks on the foot-wall side of the ore zone. Associated minerals are barium-bearing feldspar, rhodonite, urbanite, and richterite. No further data are given; the paper describes the paragenetic relations in a very unusual deposit (50,000 tons of pyrochroite-manganosite ores have been mined).

M. F.

### Unnamed

A. A. KUKHARENKO, V. V. KONDRAT' EVA, AND V. M. KOVYAZINA. Cafetite, a new hydrous titanate of calcium and iron. *Zapishi Vses. Mineralog. Obshch.*, 88, No. 4, 444–453 (1959) (in Russian.)

Associated with cafetite (see page 476) is an unknown mineral, which occurs as pseudomorphs after perovskite and dysanlyte, replaces ilmenite, and forms platy overgrowths on titanomagnetite. It is pale yellow, luster adamantine, has one perfect cleavage. H about 5, G. 3.40–3.45. Under the microscope it is pale yellow and shows polysynthetic twinning. Optically biaxial, negative, 2V 35–40°, dispersion r > v, very strong. The extinction is oblique to the twinning edge. *ns* α about 1.950, β 2.13, γ about 2.24. Spectrographic analysis showed Ti and Ca major, also Nb, Ce, Y, Fe. The mineral is insoluble in acids; loss of weight 8.5% when heated. X-ray powder data (37 lines) are given; the strongest lines are 3.30 (10), 1.761 (10), 4.77 (5), 3.63 (4), 2.29 (4), 1.501 (4).

M. F.

### NEW DATA

#### Arsenolamprite

ZDENEK JOHAN. Arsenolamprit—die rhombische Modifikation des Arsens aus Černý Dul (Schwarzenthal) im Riesengebirge. *Chem. Erde*, 20, 71–80 (1959).

Arsenolamprite, the supposed dimorph of arsenic, was recently discredited (*Am. Mineral.* 43, 1225 (1958)). It is now re-established from a new locality, Černý Dul, where it occurs as dark gray plates and veinlets in carbonate. Spectrographic analysis showed As major, Fe, Ca, Mg, Al, Si minor, Ag, Sb small, Be, Bi, Cr, Cu, Hg, Mn, Pb, Ti, Zn traces. The Ca, Mg, Al, Si are attributed to admixed carbonate, the Ag and Hg to native silver,

the Fe in part to loellingite and a chlorite-like mineral. In reflected light the mineral is gray-white, very weakly anisotropic, reflecting power close to that of rhombohedral As. Etch tests (1 minute): FeCl<sub>3</sub>, 20%, neg. (distinction from arsenic), HCl, 1-1, HgCl<sub>2</sub>, 5%, and KOH, 40%, all negative; HNO<sub>3</sub>, 1-1, positive, but much less attacked than arsenic. The x-ray powder photograph resembles that of black phosphorus and is indexed on that basis, giving an orthorhombic cell with  $a$  3.63,  $b$  4.45,  $c$  10.96 Å,  $Z=8$ ,  $G$  calcd. 5.577. The strongest lines are 5.44 (vs), 2.720 (vs), 1.115 (vs), 2.740 (s), 1.731 (s), 3.48 (m), 2.235 (m), 1.877 (m), 1.815 (m), 1.520 (m), 1.362 (m), 1.261 (m), 1.209 (m).

M. F.