

NEW MINERAL NAMES

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Unnamed Bi_2Te_5

V. S. AKSENOV, E. A. KOSYAK, SH. K. MERGENOV, AND T. F. RAFIKOV (1968) The new bismuth telluride, Bi_2Te_5 . *Dokl. Akad. Nauk SSSR* **181**, 443-446 [in Russian; also published in *Izv. Akad. Nauk Kazakh SSR, Ser. Geol.* **1968**, no. 3, p. 74-81].

Microprobe analysis gave Te 60.7, Bi 40.8, sum 101.5% corresponding closely to Bi_2Te_5 . X-ray study (20 lines given) showed strongest lines 3.204(8), 2.029(6), 1.606(4), 1.0475(4), essentially identical with published data for tellurobismuthite. Single crystal study could not be made. Microhardness 35-50 kg/mm²; tellurobismuthite gave 45-79. Reflective (8 wavelengths) increase from 55.0 at 435 nm to 62.3 at 698 nm (tellurobismuthite gave 61.6 to 64.7).

The mineral occurs as disseminations (1-2 microns to hundredths of a mm) in massive pyrite-pyrrhotite ores of the Mergenov deposits, Rudnyi Altai.

DISCUSSION.—This is much higher in tellurium than any of the reported solid solutions in the system Bi-Te. Further study is needed.

Rhodostannite

G. SPRINGER (1968) Electronprobe analyses of stannite and related tin minerals. *Mineral. Mag.*, **36**, 1045-1051.

Electron probe analyses gave Cu 16.0, 15.9; Fe 6.8, 6.5; Sn 45.5, 45.4; S 31.3, 32.8; sum 99.6, 100.6%, corresponding closely to $\text{Cu}_2\text{FeSn}_3\text{S}_8$. The X-ray pattern (17 lines) is distinctive; the strongest lines are 6.09 (40), 5.93 (60), 3.12 (100), 2.58 (50), 1.837 (20), 1.819 (30). This has been indexed by A. Kato on a hexagonal cell with a 7.27, c 18.07Å., assuming ρ 4.79, $Z=3$.

The mineral is anisotropic with polarization colors from bluish-gray to dark brown; anisotropy less pronounced than that of stannite. It has a distinctly reddish color. Reflectivity at 520 nm averaged 27.8%. Vickers hardness 243-266 kg/sq mm (stannite gave 242-283.)

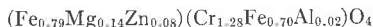
The mineral occurs in a sample from Vila Apacheta, Bolivia, associated with stannite, of which it appears to be an alteration product.

The name is for the red color and relation to stannite. The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA.

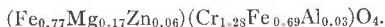
Donathite

E. SEELIGER AND A. MÜCKE (1969) Donathit, ein tetragonaler, Zn-reicher Mischkristall von Magnetit und Chromit. *Neues Jahrb. Mineral., Monatsh.* **1969**, 49-57.

Donath (Diss. Freiberg, 1930) described a chromite from Hestmandö Island, Norway, which showed distinct anisotropy. Two analyses by F. Meyer gave Fe_2O_3 (total iron) 50.49, 50.28; Cr_2O_3 41.48, 41.84; Al_2O_3 0.35, 0.76; MgO 4.68, 4.88; ZnO 2.62, 2.21; Ni, Mn, traces, SiO_2 1.74, 1.45; total 101.36, 101.42%. After subtracting SiO_2 as Mg_2SiO_4 , and recalculating to fit the spinel formula AB_2O_4 , these give:



and



X-ray study shows distinct splitting of the lines (311), (400), and (440). The symmetry is therefore tetragonal, space group $P4/nmm$, a 8.342, c 8.305Å. The strongest lines are 4.825 (5) (111), 2.514 (10) (311), 2.086 (6) (400).

Hardness $6\frac{1}{2}$ –7, $\rho \sim 5.0$ (calc. 5.10₆, 5.06₀). Strongly magnetic. Streak blackish-brown. Opaque. In reflected light shows distinct anisotropy. Commonly twinned.

The name is for the late M. Donath (died 1965), who was Professor of Economic Geology, Technical University, Berlin. The name was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

DISCUSSION.—The material was not suitable for single crystal study. Until that can be done, some doubt remains as to whether this deviation from cubic symmetry is sufficient to establish a new species.

Ringwoodite

R. A. BINNS, R. J. DAVIS, AND S. J. B. REED (1969) Ringwoodite, natural (Mg,Fe)₂SiO₄ spinel in the Tenham meteorite. *Nature* **221**, 943–944 (1969)

Microprobe analyses by J. M. HUNNEX gave SiO₂ 38.9, 38.7; FeO 23.4, 23.2; MgO 37.0, 38.8; CaO none, none; sum 99.3, 100.7%, the first analysis is of purple ringwoodite from veins and gives (Mg_{1.48}Fe_{0.52})SiO₄. The second analysis is of bluish-gray pseudomorphs of ringwoodite after olivine; the unit cell dimension indicates a composition (Mg_{1.32}Fe_{0.68})SiO₄, and it is supposed that amorphous silicate is present.

X-ray powder data of the material of analysis had strongest lines (garnet present) 2.872 (40) (220), 2.447 (100) (311), 2.028 (58) (400), 1.560 (45) (511), 1.434 (58) (440), corresponding to $a = 8.113 \pm 0.003\text{Å}$, very close to that observed for the synthetic spinel phase of this composition. It had $n = 1.768 \pm 0.003$, also close to that of synthetic material of this composition.

The mineral occurs in rounded grains up to 100 μm in diameter in black veins in the Tenham chondrite, also as pseudomorphs after olivine in the same meteorite.

The name is for Prof. A. E. Ringwood, Australian National Univ. The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA. It is suggested that the name be used for the entire range of (Mg,Fe)₂SiO₄ spinels.

Onoratoite

G. BELLUOMINI, M. FORNASERI, AND M. NICOLETTI (1968) Onoratoite, a new antimony oxychloride from Cetine di Cotorniano, Rosia (Siena, Italy). *Mineral. Mag.*, **36**, 1037–1044.

The name onoratoite is given to a phase previously described [see *Amer. Mineral.* **53**, 351 (1968)]. Additional data: The crystals are acicular, elongated [010], flattened {001}; other forms present are {100}, {201}, {401}, {412}. Optically biaxial, neg., n_s (S-Se melts) β between 2.18 and 2.23, γ between 2.23 and 2.26, $\gamma - \beta = 0.024$. Orientation X : [001] ca. 12°, Y : [100] ca. 8°, Z : [010] 0–14°. TGA and DTA curves are given; the latter shows endothermic effects at 230°, 580° and 600°.

The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Vimsite

D. P. SHASHKIN, M. A. SIMONOV, AND N. V. BELOV (1968) Crystal structure of the new natural borate vimsite, Ca[B₂O₂(OH)₄]; *Dokl. Akad. Nauk SSSR* **182**, 821–824 (in Russian).

D. P. SHASHKIN, M. A. SIMONOV, N. I. CHERNOVA, S. V. MALINKO, T. I. STOLYAROVA, AND N. V. BELOV (1968) A new borate, vimsite. *Dokl. Akad. Nauk SSSR* **182**, 1402-1405 (in Russian).

Analysis of a sample picked under the binoculars gave B_2O_3 37.36, CaO 36.14, MgO 0.92, Al_2O_3 0.57, Fe_2O_3 1.63, SiO_2 2.18, H_2O^+ 20.86, H_2O^- none, sum 99.66%. After deducting MgO as magnesite and SiO_2 , Al_2O_3 , Fe_2O_3 , and CaO as garnet (grossular-andradite), this gives $CaO \cdot B_2O_3 \cdot 2.2H_2O$. The DTA curve shows a strong endothermic effect at 327° and 2 weak ones at 435° and 645°, and an exothermic effect at 738°. Insoluble in H_2O , easily dissolved by acids.

Single crystal study showed the mineral to be monoclinic, space group C_{2h}^2-C2/c , a 10.02 ± 0.02, b 9.71 ± 0.02, c 4.440 ± 0.005 Å, β 92°, $Z=4$. The strongest X-ray lines are 6.87 (6) (110), 3.72 (7) (111), 3.48 (10) (220), 3.26 (5) (021), 3.04 (6) (130), 2.61 (7) (311), 2.55 (6) (311), 2.50 (6) (400), 1.672 (5) (600), 1.577 (5) (620), 1.435 (5) (113), 2.222 (8) (420), 2.060 (6) (202), 2.037 (5) (331), 1.881 (7) (222).

The structure is given in detail. It contains an infinite chain of formula $[B_2O_2(OH)_4]^{2-}$ of pyroxene type, so that the formula must be $Ca[B_2O_2(OH)_4]$.

Vimsite occurs in colorless, transparent crystals up to 2 mm in size. Luster vitreous. Cleavage perfect along the elongation. $H=4$, ρ 2.54 (mea), calc. for $2.2H_2O=2.56$. Optically biaxial, negative, $2V28^\circ$, $n_s \alpha$ 1.585, $\beta = \gamma$ 1.614, all ± 0.001.

The mineral occurs with uralborite [*Amer. Mineral.* **47**, 1482 (1962)] in skarn from the Urals. Uralborite, $CaB_2O_4 \cdot 2H_2O$, is here reported to be monoclinic, $P2_1/n$, a 6.92, b 12.35, c 9.80 (all ± 0.02 Å), β 97°, $Z=8$.

The name is for the initials of the All-Union Research Inst. of Mineral Resources (Vses. Nauch.-Issled Inst. Mineral. Syr'ya). The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Curienite

FABIEN CESBRON AND NOEL MORIN (1968) Une nouvelle espèce minérale: la curiénite.

Étude de la série francevillite-curiénite. *Bull. Soc. Franc. Mineral. Cristallogr.*, **91**, 453-459.

Chemical analysis by J. Fritsche gave UO_3 53.40, V_2O_5 17.32, PbO 20.09, BaO 0.84, H_2O 8.30, sum 99.95%, corresponding closely to $Pb(UO_3)_2(VO_4)_2 \cdot 5H_2O$, the lead analogue of francevillite [*Amer. Mineral.* **43**, 180 (1958)]. The DTA curve of natural and synthetic material shows large endothermic breaks at 190° and 710°, a smaller one at 910°. It is readily synthesized by mixing solutions containing V_2O_5 , uranyl nitrate, and lead nitrate (the acetates can be used), then heating the solution and amorphous precipitate in a sealed pyrex tube for 48 hours at 180°C.

X-ray study of synthetic material (powder pattern identical to that of natural) showed it to be orthorhombic, space group $Pcan$, a 10.40 ± 0.04, b 8.45 ± 0.03, c 16.34 ± 0.04 Å, $Z=4$. The strongest X-ray lines (34 given) are 8.19 (vvs) (002), 5.13 (s) (112), 4.22 (s) (020), 4.10 (vs) (004), 3.226 (ms) (204, 221), 3.005 (vvs) (214, 312), 2.116 (ms) (234, 040, 332).

Color canary-yellow, ρ 4.88 (calc. 4.94). Optically biaxial, neg., $2V$ 66°, n_s above 2, not measured. In the series francevillite-curienite, $2V$ increases linearly with Pb content from 48° to 66°.

The mineral occurs as a microcrystalline powder on tabular crystals of francevillite in mineralized sandstones of the Mounana U-V mine, Gabon. The name is for Professor Hubert Curien, Sorbonne. Type material is preserved at the Lab. Mineral.-Cristallographie, Faculté des Sciences, Paris. The mineral and name were approved before publication by the Commission on New Minerals and Mineral Names, IMA.

Strashimirite

I. MINCHEVA-STEFANOVA (1968) Strashimirite, a new hydrous copper arsenate. *Zap. Vses. Mineralog. Obshch.* **97**, 470-477 (in Russian).

Microchemical analysis on 7 mg by M. Pavlova gave As_2O_5 38.3, CuO 49.8, ZnO 2.0, H_2O (by diff.) 9.9%, corresponding to $(Cu_{3.85}Zn_{0.15})(AsO_4)_{2.04}(OH)_{1.76} \cdot 2.5H_2O$. Spectrographic analysis showed also $Sb \sim 0.1\%$, Mn, Cd, Pb, Tl, Ba, Ca, Mg, Si, Al 0.0001-0.01%. V, Mo, P, and sulfate were absent.

The strongest X-ray lines (51 given) (by L. Punev) are 18.74 (10) (010), 9.46 (8) (020), 8.97 (9) (001), 4.79 (8) (299, 040), 4.21 (8) ($11\bar{2}$, 041), 3.35 (8) (240, 132), 3.13 (9) (060), 2.86 (10) (330, $12\bar{3}$), 2.65 (6) (340, 331), 2.476 (7, b) (341, 171, 302). This is indexed on a unit cell (obtained by the Ito method), monoclinic, $P2/m$, P_2 , or Pm , a 9.71, b 18.85, c 8.94Å., β $97^\circ 12'$, $Z=6$. ρ calc. 3.81.

The mineral occurs as fine platy to fibrous aggregates in spherulites up to 0.5 mm. Color white to pale green luster pearly to greasy. Hardness and ρ could not be determined. Optically biaxial, negative, $2V$ 70° , n_s (Na) α 1.726 ± 0.001 , γ 1.747 ± 0.002 . Pleochroism weak, Z yellowish-green, Y very pale yellowish-green. Elongation positive. Z :elongation = about 5° .

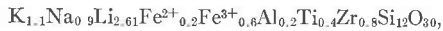
The mineral occurs in the zone of oxidation of the Zapachitsa copper deposit, western Stara-Planina, Bulgaria. It replaces tyrolite and cornwallite. Strashimirite is formed late in the sequence; other associated minerals are azurite, olivenite, malachite, and euchroite.

The name is for the Bulgarian petrographer Strashimir Dimitrov. The mineral was approved before publication by the Commission on New Minerals and Mineral Names, IMA.

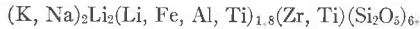
Sogdianovite

V. D. DUSMATOV, A. F. EFIMOV, Z. T. KATAEVA, L. A. KHOROSHILOVA, AND K. P. YANULOV (1968) Sogdianite, a new mineral. *Dokl. Akad. Nauk SSSR* **182**, 1176-1177 (in Russian).

Analysis by Z.T.K. gave SiO_2 68.83, ZrO_2 9.78, TiO_2 2.88, Al_2O_3 1.04, Fe_2O_3 4.61, FeO 1.22, MgO, MnO traces, Li_2O , CaO none, BaO 0.32, K_2O 4.84, Na_2O 2.81, H_2O none, F none, sum 100.06%. This corresponds to—



or



This is the first known zirconosilicate of lithium. DTA shows an exothermic effect at 950° , an endothermic one at 1050° .

X-ray study showed the mineral to be hexagonal, space group $D_{6h}-6/mmm$, a 10.09, c 13.98Å., $Z=2$. The strongest X-ray lines (49 given) in kX (Fe-radiation) are 4.50 (6), 4.08 (9), 3.51 (5), 3.19 (10), 2.89 (10), 1.834 (8), 1.722 (5), 1.672 (5), 1.514 (7), 1.446 (5), 1.368 (5), 1.323 (8), 1.207 (5), 1.109 (6), 1.097 (7).

Color beautiful violet (like kunzite), luster vitreous, transparent. Cleavage {0001} perfect. G . 2.90, H . 7. Optically uniaxial, negative, ω 1.608, ϵ 1.606 (these data make it uniaxial, positive: M.F.)

The mineral was found as platy deposits up to $10 \times 7 \times 4$ cm in a vein pegmatoidal body corresponding in composition roughly to an alkalic granite consisting of microcline, quartz, and aegirine. The central part of the vein, with which the mineral is mostly associated,

consists essentially of quartz core with phenocrysts of microcline, aegirine, and rare-earth minerals such as thorite and stillwellite.

Sogdianite occurs either included in quartz, or rarely in interstices between microcline crystals. The occurrence is in one of the complex alkalic intrusives of the Alai Range. Tadzhik SSSR.

The name is for the ancient state of Middle Asia, Sogdiana.

Unnamed zirconium silicates

E. I. SEMENOV (1967) *Hydrous Zirconium Silicates. Mineralogy of Pegmatites and Hydrothermalites of Alkalic Massifs*. Izdat. "Nauka," p. 3-13 (in Russian).

Analysis of a white mineral from Ilimaussak, Greenland by M. E. Kazakova and a partial analysis by Z. T. Kataeva, gave resp., SiO₂ 54.65, 48.98; ZrO₂ 23.83, 25.64; TiO₂ none, 0.48; SnO₂ 1.30, —; Nb₂O₅ 1.63, 0.45; Al₂O₃ none, 0.63; Fe₂O₃ 0.59, 1.76; CaO none, 0.36; Na₂O 5.97, n.d.; K₂O 0.93, n.d.; H₂O⁺ 10.64, 12.62; H₂O⁻ 0.57, —; sum 100.11% (given as 100.20). Spectrographic analysis by N. V. Lizuniv showed 1.4% HfO₂, and the presence of Y, Be, and Pb. The analysis gives Na₂Zr₂Si₃O₂₁·6H₂O, or NaZrSi₄O₁₀(OH)·2H₂O. A DTA curve showed an endothermal break at 260°. An infrared absorption curve is given.

X-ray powder data by R. A. Aleksandrova showed 20 lines; the strongest (in kX) are 5.27 (8), 4.22 (6.5), 3.36 (10), 3.19 (5.5), 2.57 (6.5), 1.624 (5.5). Color white. ρ 2.45, n_s , α 1.555, γ 1.562, optic sign not given. The mineral was found as aggregates up to 1 cm in cavities of leaching sodalite syenites, north slope of Nakalak Mt., Ilimaussaq massif, Greenland.

Analysis by M. V. Kukharchik of a brown mineral gave SiO₂ 40.50, ZrO₂ 23.25, TiO₂ 0.80, Nb₂O₅ 0.22, Al₂O₃ 1.60, Fe₂O₃ 1.35, MgO 0.05, MnO 6.43, CaO 3.40, RE₂O₃ 0.88, Na₂O 3.08, K₂O 3.92, H₂O⁺ 5.80, H₂O⁻ 9.00, sum 100.28%, corresponding approximately to (Na, K, Ca)₂MnZrSi₄O₁₂·6H₂O. The water is lost at 100–300°; the DTA curve shows an endothermal peak at about 160° and an exothermal break at about 330°.

X-ray study by R. A. Aleksandrova gave strongest lines (16 given) (in kX): 5.92 (9), 3.14 (10), 2.98 (4.5), 1.679 (4). The mineral occurs as bruski-like acicular crystals, forming cellular to spherulitic intergrowths. Color blackish-brown, n about 1.70 (down to 1.68 in paler varieties). Elongation negative, extinction inclined. ρ 2.2 (probably low because of porosity). Brittle, with conchoidal fracture. The mineral occurs as an alteration product of endialyte in sodalite syenite, Mt. Karnasurt, Lovozero massif.

NEW DATA

Zirconolite

Z. V. PUDOVKINA AND YU. A. PYATENKO (1966) Zirconolite and its crystallographic characteristics. *Trudy Mineral. Muz. Akad. Nauk SSSR* 17, 124–133 (in Russian).

When metamict zirconolite [see *Amer. Mineral.* 42, 581–582 (1957)] is heated at 800°, gives a disordered cubic phase with a 5.03–5.07 Å. When it is heated at 100°, it gives a monoclinic phase with a 12.58, b 7.27, c 11.44Å, β 100° 34'. The "zirkelite" from Ceylon of Blake and Smith (1913) (see *Dana's System 7th Ed.*, V. 1, p. 741) is zirconolite.

DISCREDITED MINERALS

Minguetite = Stilpnomelane

JEAN-JACQUES CHAUVEL (1968). Identite de la minguetite du minerai de fer ordovicien de Bretagne et d'Anjou avec la stilpnomelane. *Bull. Soc. Franc. Mineral. Cristallogr.* **91**, 460-467.

Chemical, optical, DTA, and X-ray study of material from the type locality (Lacroix, 1910; *Dana's System, 6th Ed., App. 3*, p. 52) showed it to be a member of the stilpnomelane group. The name minguetite should be dropped (agreed to by the Commission on New Minerals and Mineral Names, IMA).