

New Mineral Names

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Drysdallite*

FRANTISEK CECH, MILAN RIEDER, AND STANISLAV VRANA (1973) Drysdallite, MoSe_2 , a new mineral. *Neues Jahrb. Mineral. Monatsh.* **1973**, 433-442.

Probe analysis by E. Joseph, with Mo, Se, and ZnS as standards, gave Mo 35.30, Se 60.40, S 3.40, sum 99.10 percent, corresponding to $\text{Mo}_{0.85}(\text{Se}_{1.76}\text{S}_{0.24})$. Traces of Si, Mg, Al, Pb, Fe, Bi, Ca, Cu, Ni, and Ti were found spectrographically.

X-ray study showed the mineral to be hexagonal, space group probably Pb_3/mmc (by analogy with molybdenite), unit cell from 3 determinations, a 3.286-3.287, $av.$ 3.287, c 12.889-12.929, $av.$ 12.914 Å, $Z = 2$, G 6.25 calc, G could not be measured. The strongest X-ray lines (36 given) are 6.46 **76** 00·2, 2.845 **55** 10·0, 2.373 **100** 10·3, 1.913 **54** 10·5, 1.643 **38** 11·0, 1.615 **42** 00·8. Cell parameters of the series MoS_2 - MoSe_2 give a straight-line graph against composition.

Color grayish-black with a brownish tint, streak brownish-black. Very soft. Cleavage {00·1} perfect. Polishes well with polishing hardness somewhat higher than that of molybdenite. Birefractance strong, with O white to very light gray, E pinkish gray, pinker than molybdenite. Anisotropy very strong, with colors from light bluish-gray to purplish brown. No internal reflections. Micro-hardness (7.6 g load) 46-58, $av.$ 52 parallel (00·1), 37-50, $av.$ 43 normal to (00·1). Reflectances are given at 14 wave lengths (440-700 nm) in air and in oil parallel to and normal to (00·1): in air parallel to (00·1). Rg and Rp in percent are: 4600, 37.0, 16.9; 5400, 36.3, 17.9; 5800, 35.2, 17.7; 6400, 34.5, 17.8; 7000, 35.2, 17.8 percent.

The mineral occurs in the oxidation zone of the uranium deposit at Kapijimpanga, N.W. Province, Zambia, associated with uraninite, wilkeite, masuyite, and secondary U minerals in a talc schist.

The name is for A. R. Drysdall, Director, Geological Survey Department of Zambia. Type material is at Charles University, Prague.

Schneiderhöhnite*

JOACHIM OTTEMANN, BERNHARD NUBER, AND B. H. GEIER (1973) Schneiderhöhnite, ein natürliches Eisen-Arsen-Oxid aus der tiefen Oxidationszone von Tsumeb. *Neues Jahrb. Mineral. Monatsh.* **1973**, 517-523.

Probe analyses, using cobaltite, FeS, renierite, and angelelite as standards, gave Fe 28.35, 28.22, 30.13; Zn 0.93, 1.41, 0.44, Ge 0.40, 0.63, 0.09, As 46.23, 48.15, 46.72; O (by difference) 24.09, 24.59, 22.65 percent, corresponding to $8 \text{FeO} \cdot 5\text{As}_2\text{O}_3$. Heating at 800° caused a gain in weight.

* Minerals marked with an asterisk after the name were approved before publication by the Commission on New Minerals and Mineral Names of the International Mineralogical Association.

Weissenberg study showed triclinic symmetry, space group $P\bar{1}$ or $P1$, a 8.940 ± 0.004, b 9.998 ± 0.004, c 9.145 ± 0.005 Å, α 63.00 ± 0.03, β 116.20 ± 0.03, γ 81.79 ± 0.03°, $Z = 1$, $G.$ calc 4.40, meas 4.3. The strongest X-ray lines (17 given) are 7.25 **10** 100, 3.583 **10** 200, 220, 3.320 **8** 002, 3.117 **7** 122, 2.891 **10** $\bar{3}$ 02, 2.598 **10** 012, 2.399 **9** 300, 2.255 **8** $\bar{3}$ 1 $\bar{3}$, 220, 2.202 **8** 240, 331.

Color very dark brown, nearly black, luster metallic to adamantine. Cleavages {100} perfect, 2 others distinct. Streak coffee-brown. $H = 3$. Opaque, ns α above 2.11, ν below 2.13, biaxial, positive. In thin splinters transparent with pleochroism reddish-brown to bright yellow, absorption $X > Y < Z$. In section in reflected light, birefringence not apparent, anisotropy weak, greenish to brownish, internal reflections reddish-brown. Reflectance lower than that of chalcocite.

The mineral occurs in the deep oxidation zone at Tsumeb, S. W. Africa, in a druse with aggregates of crystals up to 7 mm, associated with chalcocite and zincian stottite. The name is for the late Hans Schneiderhöhn, Professor of Mineralogy at the University of Freiburg.

Unnamed Ag-Pb-Bi-S Minerals

MUNEMOTO NEDACHI, TSUNEHIKI TAKEUCHI, KAZUO YAMAOKA, AND MASAHIRO TANIGUCHI (1973) Bi-Ag-Pb-S minerals from Agenosawa mine, Akita Prefecture, northeastern Japan. *Sci. Rep. Tohoku Univ., Ser. 3*, **12**, 69-88.

Microprobe analyses of phase X, occurring with bismuthinite and gustavite, gave Bi 42.1, 43.4, 44.8; Ag 4.2, 3.9, 3.7; Pb 37.7, 37.2, 36.0; Cu -, -, 0.1; Fe -, 0.1, 0.1; S 15.8, 16.4, 16.6; sum 99.8, 101.0, 101.2 percent, average composition $\text{Ag}_{1.8}\text{Pb}_{8.5}\text{Bi}_{8.5}\text{S}_{24}$. This is phase X of Karup-Møller (abstr. **56**, 634, 1972) who found $\text{Ag}_2\text{Pb}_8\text{Bi}_{10}\text{S}_{24}$.

Phase Z occurs with cosalite and galena. Probe analysis gave Bi 38.5, Ag 2.2, Pb 43.8, S 16.5, sum 100.9 percent, corresponding to $\text{Ag}_{1.0}\text{Pb}_{9.0}\text{Bi}_{8.0}\text{S}_{24}$.

Unnamed Bismuth Mineral

O. VON KNORRING (1972) The occurrence of bismuth minerals in some African pegmatites. *Annu. Rep. Res. Inst. African Geol., Univ. Leeds, No. 16*, 53-55.

A gray mineral was found as an acicular incrustation between quartz crystals and bismite, Mbale pegmatite, S.W. Uganda. Spectrographic analysis shows major Bi and minor Ca. The X-ray pattern has strongest lines (25 given): 6.18(s), 4.436(vs), 4.073(s), 3.241(vs), 3.173(vs), 3.118(vs), 3.015(vs), 2.948(s), 2.568(s). The same mineral occurs along cleavage planes of altered bismutotantalite from Wampewo, Buganda. Spectrographic analysis shows mainly Bi, with some Al and P.

Unnamed Lead Iron Sulfide

E. A. DUNIN-BARKOVSKAYA, AND V. V. LUDER (1973) A new sulfide of iron and lead in kobellite from the Ustarasai deposit. *Issled. Oblast Rudnyi Mineral.* 156-159 (in Russian).

The mineral occurs in grains of oval-rhomboidal section up to 0.2 mm in size as inclusions in kobellite from quartz veins in the Ustarasai bismuth deposit, Pskem Ridge, S. E. Tien-Shan. Electron probe analysis showed major Fe, Pb, S, with 0.5 percent Ni. Two determinations gave Fe 40.4 (Fe standard), 39.2 (pyrite standard), av. 40.4 percent. It contained more Pb than the associated kobellite (>40.0 percent) and more sulfur (>17.1 percent), but quantitative analyses could not be made.

In reflected light pale gray. Reflectance at 600 mμ = 50 percent. Isotropic, birefringence, and internal reflections were not observed. H. 2-2.5.

Unnamed Na₂ZrSi₂O₇ and K₂ZrSi₂O₇

A. P. KHOMEYAKOV, AND A. A. VORONKOV (1973) New zirconium silicates in the Lovozero and Khibina massifs. *Trudy Mineral. Muzeya Akad. Nauk. S.S.S.R.* **22**, 215-217 (in Russian).

1. Na₂ZrSi₂O₇. The mineral occurs as transparent material associated with keldyshite in the Umbozera region, Lovozero massif, Kola Peninsula (*Am. Mineral.* **47**, 1216; **55**, 1072). X-ray study showed it to be triclinic, *P*1, *a* 6.66, *b* 8.83, *c* 5.42 Å, α 92°45', β 94°15', γ 72°20', *Z* = 2. The strongest X-ray lines (33 given): 6.14 **35**, 4.72 **40**, 4.18 **65**, 3.98 **60**, 3.20 **35**, 2.910 **100**, 2.225 **40**. Colorless, *G*. 3.2 ± 0.1, biaxial, neg., 2*V* 83°, α 1.670, β 1.697, γ 1.718. No analysis could be made, but spectrographic analysis indicated that the mineral had the same major components in nearly the same proportions as keldyshite. Furthermore, heating keldyshite to 500-600° gave a product with the same powder pattern as the new mineral. It is therefore considered to be a high-temperature polymorph of keldyshite, with ideal formula Na₂ZrSi₂O₇.

2. The second mineral was found in the Gakman Valley, Khibina massif, in ovoids up to 2-3 cm in diameter in aegirine-rich metasomatic rocks. The outer zone of the ovoids consists of eudialyte, the inner zone of zircon and the new mineral, the latter in irregular grains up to 3 mm. Color pale yellowish, luster dull or greasy. Translucent. *G*. about 3.3. Optically biaxial, neg., 2*V* = 11°, α 1.665, β ≈ γ ≈ 1.715. Laue and oscillation study showed the mineral to be monoclinic or triclinic, *a* 19.22, *b* 11.10, *c* 14.10 Å, α 90°, β 116°30', γ 90°. There are pronounced pseudo-periods: *a'* = *a*/2, *b'* = *b*/2, *c'* = *c*/2. The mineral is nearly trigonal, $\bar{3}m$, arh 14.10 Å, α 46°30'. The strongest X-ray lines (25 given) are 4.268 **36**, 4.151 **32**, 2.946 **68**, 2.761

100, 2.1325 **52**, 2.019 **32**, 1.664 **36**, 1.630 **64**, 1.5945 **40**, 1.381 **48**, 1.252 **44**.

The amount of material did not permit a complete analysis. Flame photometric study on 5.6 mg by G. N. Popov gave K₂O 23.5, Na₂O 1.8, CaO 0.9 percent > (theory for K₂ZrSi₂O₇ is K₂O 27.9 percent). The unit cell and powder data correspond closely with those for synthetic K₂ZrSi₂O₇ (Chernov *et al*, *Kristallografiya*, **15**, no 2, 1970).

Unnamed Phosphates

O. VON KNORRING (1972) Phosphate minerals from Buranga pegmatite, Rwanda. *Annu. Rep. Res. Inst. African Geol. Univ. Leeds*, No. **16**, 56-57.

X-ray data for white rosettes of an unknown phosphate showed strongest lines (31 given): 4.208(s), 3.847(s), 2.786(vs), 2.554(s). The strongest lines for a greenish-yellow unknown (24 given) are 3.437(s), 3.076(vs), 2.657(s), 2.590(s), 2.318(s), 1.711(s).

Unnamed Sr-Ti Silicate

MASAYUKI KOMATSU, KAZUYA CHIHARA, AND TADATO MIZOTA (1973) A new strontium-titanium hydrous silicate mineral from Ohmi, Niigata Prefecture, central Japan. *Mineral. J.* (Tokyo), **7**, 298-301.

TADATO MIZOTA, MASAYUKI KOMATSU, AND KAZUYA CHIHARA (1973) The crystal structure of Sr₂TiSi₂O₁₂(OH)·2H₂O, a new mineral. *Mineral. J.* (Tokyo), **7**, 302-305.

Analysis by E.P.M.A. (sic) gave SiO₂ 34.79, Ti₂O₃ 10.27, Fe₂O₃ 0.20, SrO 47.37, H₂O⁺ 6.68, H₂O⁻ none, Al, Mg, Ca, Na, K not detected, sum 99.31 percent, corresponding to the title composition. The second paper states that this is by electron microprobe, H₂O by loss on ignition.

Precession, Weissenberg, and diffractometer data show the mineral to be monoclinic, space group *P*2₁/*m*, *a* 10.958, *b* 7.785, *c* 7.799 Å, β 100°54', *Z* = 2, *G*. 3.394 calc, 3.38 meas. The strongest lines (41 given) are: 10.83 **70 100**, 5.39 **77 200**, 4.62 **100 111**, 3.83 **90 002**, 3.264 **85 310**, 3.037 **80 221, 301**, 2.831 **54 311**, 2.730 **57 122, 022**, 2.600 **90 103**.

The mineral occurs as aggregates of radiating fibrous crystals up to 0.2 mm across. Individual grains are less than 10 μm long, 5 μm wide. Color pink to pinkish brown; streak white. H. about 3.5. Cleavage {100} perfect. Optically biaxial, 2*V* and sign not determinable, *ns* α 1.649, γ 1.715, both ±0.003, *Y* = *a*, *Z* = *b*, pleochroism weak from nearly colorless to light pink.

The mineral occurs in albitite of a quartz-amphibole-albitite dike cutting serpentinite in Ohmi, Niigata Prefecture, Japan. Associated minerals include blue fibrous amphibole (magnesian riebeckite), phlogopite, benitoite, and a joaquinite-like mineral.

NEW DATA

Millosevichite

B. I. SREBRODOL'SKII (1974) An occurrence of millosevichite in the U.S.S.R. *Dokl. Akad. Nauk S.S.S.R.* **214**, 429-430 (in Russian).

Millosevich was described in 1913 by Panichi (Dana's *System*, 7th Ed., v. 2, p. 539) as iron-aluminum sulfate. It is now described from the L'vov-Bolynskii coal basin, occurring in fractures in the rocks from which H₂S and SO₂ were escaping.

Analysis gave Al_2O_3 20.90, Fe_2O_3 8.80, MgO 2.32, CaO 0.86, H_2O 2.55, SO_3 54.35, insol. 9.96, total 99.74 percent. After deducting impurities of country rock (not specified), this is stated to give $(\text{Al}_{1.81}\text{Fe}_{0.19})(\text{SO}_4)_3$. (Direct calculation, assuming $\text{SO}_3 = 3.00$, gives $(\text{Al}_{1.81}\text{Fe}_{0.40})$ M.F). The DTA curve gives a slight break at 95° (hygroscopic water) and a large endothermic break at 850° (decomposition of sulfate). Insoluble in water, dissolved by acids.

X-ray powder data are given (Cu radiation, Ni filter). The strongest lines (16 given) are 5.8 **8**, 3.50 **10**, 2.92 **8**, 2.65 **9**, 2.22 **6**, 2.03 **6**, 1.75 **6**, 1.66 **6**, 1.53 **7**.

Color cherry-red, in the air becomes clear red to brick-red, streak red, luster vitreous. H. 1.5, G 1.72. Under the microscope brown, isotropic, n 1.573.

Smolyaninovite

L. K. YAKHONTOVA, G. A. SIDORENKO, N. E. SERGEEVA, AND

L. I. RYBAKOVA (1973) New data on smolyaninovite. *Konst. Svoistva Mineral.* **7**, 120–123 (in Russian).

Smolyaninovite was described by Y. in 1956 [*Am. Mineral.* **42**, 307 (1957)] as $(\text{Co,Ni,Ca,Mg})_2(\text{Fe,Al})(\text{AsO}_4)_2(\text{OH}) \cdot 5\text{H}_2\text{O}$. New data on type material are given. The X-ray pattern (7 lines, strongest 21.94 **19 001**, 11.58 **8 010**, 3.20 **6 200**, 2.52 **5 040**, 1.642 **5 400**) is indexed on an orthorhombic cell with a 6.40, b 11.72, c 21.9Å., $Z = 2$, G. calc 2.2, det 2.05–2.15. The DTA curve shows a double endothermic effect at 120° and 180° and an exothermic peak at 700° . Infra-red absorption spectra indicate $(\text{AsO}_4)^{3-}$ ion, H_2O , but no $(\text{OH})^-$ groups. The mineral is considered to be the Co–Ni analogue of arseniosiderite.

Discussion

The data of Moore, *Am. Mineral.* **59**, 56–57 (1974), on arseniosiderite do not indicate a close relationship to smolyaninovite.