

## NEW MINERAL NAMES

### Berylliosodalite, Beryllium Sodalite Unnamed Be mineral

E. I. SEMENOV AND A. V. BYKOVA. Berylliosodalite. *Doklady Akad. Nauk S.S.S.R.*, **133**, 1191-1193 (1960) (in Russian).

HENNING SØRENSEN. Beryllium minerals in a pegmatite in the nepheline syenites of Ilimaussaq, South West Greenland. *Internat. Geol. Congress, Rept. 21st Session, Norden, 1960, Pt. 17*, 31-35.

These two papers describe what is apparently the same mineral. It occurs as a hydrothermal alteration product of chkalovite in pegmatites of Mt. Sengischorr and Mt. Punkaruav, Lovozero massif, Kola Peninsula, U.S.S.R., and as veins cutting chkalovite in an albite-analcime vein in nepheline syenite pegmatite, Tugtup agtakôrfa, Ilimaussaq, Greenland. Analysis by A. V. Bykova of the Kola mineral gave SiO<sub>2</sub> 50.45, Al<sub>2</sub>O<sub>3</sub> 12.56, Ga<sub>2</sub>O<sub>3</sub> 0.043, BeO (given as Be<sub>2</sub>O<sub>3</sub>) 5.30, CaO 0.50, Na<sub>2</sub>O 23.26, K<sub>2</sub>O 0.40, H<sub>2</sub>O<sup>+</sup> 1.50, H<sub>2</sub>O<sup>-</sup> 1.51, Cl 6.04, sum 101.56, -(O=Cl<sub>2</sub>) 1.40 (should be 1.37 M.F.), sum 100.26% (should be 100.19% M.F.). Spectrographic analysis by N. V. Lizunov showed also weak lines of Fe, Cu, and Mg. The analysis gives Na<sub>4</sub>BeAlSi<sub>4</sub>O<sub>12</sub>Cl, *i.e.*, sodalite with BeSi replacing Al<sub>2</sub>. The slightly low Na<sub>2</sub>O and the presence of water may be due to alteration. The Greenland mineral has not been analyzed; spectrographic analysis showed the mineral to have main components Al, Ca, Na, Si, Mg, to be fairly rich in Be and Ga. The Ga/Al ratio of the Kola mineral is unusually high. The Kola mineral fuses easily B. B.; in ultraviolet light luminesces strongly rose-colored.

The Kola mineral is rose-colored, bluish, greenish; the Greenland mineral is white, changing to light pink in strong sunlight. The Kola mineral is translucent, luster vitreous, fracture conchoidal, H. about 4, G 2.28.

The Kola mineral is cryptocrystalline, weakly anisotropic, *n* about 1.495. The Greenland mineral is uniaxial positive, *n<sub>s</sub>*  $\omega$  1.496  $\pm$  0.001,  $\epsilon$  1.502  $\pm$  0.002, apparently tetragonal with a distinct bipyramidal cleavage.

The *x*-ray powder diagrams of both minerals are stated to resemble that of sodalite, but to show splitting of reflections. The Greenland mineral (*x*-ray powder data not given) is tetragonal, *a* 8.583, *c* 8.817 Å. The Kola mineral is not cubic, but approximates *a* 8.72 Å. The strongest lines are 3.95 (10), 2.53 (8), 2.05 (broad) (8), 6.15 (7), 2.35 (7).

Associated with the Kola mineral is a weathering product of chkalovite, unnamed, which is white, fine-foliated, with pearly luster, anisotropic, *n* 1.492. Spectrographic analysis gave Be, Si very strong, Mg, Al, Ca, Na medium. The *x*-ray powder pattern is given; the strongest lines are 4.11 (10), 2.96 (10), 2.50 (10), 1.806 (8).

MICHAEL FLEISCHER

### Zincsilite

N. N. SMOL'YANINOVA, V. A. MOLEVA AND N. I. ORGANOVA. A new aluminum-free member of the montmorillonite-sauconite series. *Acad. Sci. U.R.S.S., Comm. for Study of Clays, Repts. to Meeting of Internat. Comm. for Study of Clays, 1960*, 45-52 (in Russian).

The mineral occurs in the zone of oxidation of the skarn galena-sphalerite-chalcopyrite deposits of Batystau, central Kazakhstan. It forms as a homo-axial pseudomorph after diopside and is associated with chrysocolla, supergene fluorite, opal, and manganese oxides.

The mineral is white to bluish, occurring as fine foliae or lamellae up to 2  $\times$  1.5  $\times$  0.5 mm. Cleavage (001) perfect, luster pearly on cleavage face. G. 2.67-2.71 (by suspension),

H.  $1\frac{1}{2}$ –2. Optically biaxial, negative,  $n_s, \alpha$   $1.514 \pm 0.002$ ,  $\beta$   $1.559 \pm 0.033$  (misprint for 0.003 ? M.F.),  $\gamma$   $1.562 \pm 0.002$ , 2V variable 0–22°.  $c:Z=3^\circ$ , X nearly perpendicular to (001), plane of optic axes parallel to (010). After being heated to 400°, the mineral becomes greenish-brown and distinctly pleochroic, X pale green, Z dark brownish-green,  $n_s, \alpha$   $1.512 \pm 0.002$ ,  $\gamma$   $1.570 \pm 0.003$ .

Analyses were made by V.A.M. of white and bluish varieties, both containing fine-grained diopside, garnet, chrysocolla, opal and quartz. These gave, respectively: ZnO 26.64, 35.00; CuO 0.60, 3.07; MgO 4.62, 1.08; MnO 0.40, —; CaO 6.40, 2.00;  $Al_2O_3$  0.84, 0.70;  $Fe_2O_3$  2.16, 1.55;  $SiO_2$  47.60, 42.75;  $H_2O^-$  6.35, 8.50;  $H_2O^+$  4.35, 6.00; sum 99.96, 100.65%. The analyses were recalculated by subtracting total  $Al_2O_3$  and  $Fe_2O_3$  and corresponding CaO and  $SiO_2$  as garnet, the remaining CaO and MgO and corresponding  $SiO_2$  as diopside, and the CuO with  $SiO_2$  and  $H_2O$  as chrysocolla. This gives formulas  $3ZnO \cdot 5.01SiO_2 \cdot 5.37 H_2O$  and  $3ZnO \cdot 4.17SiO_2 \cdot 5.31 H_2O$ . If it is assumed that some opal and quartz were present, the formula might be written  $Zn_3 Si_4 O_{10}(OH)_2 \cdot nH_2O$ , with  $n$  about 4.

The mineral is decomposed by acids and partly decomposed by treatment with 5%  $Na_2CO_3$  solution. Ion exchange experiments with 10%  $NH_4Cl$  solution gave in solution for the first sample  $SiO_2$  0.40, CaO 0.70, MgO+ZnO 0.20%; for the second  $SiO_2$  0.32, CaO 0.46%. Because  $SiO_2$  was found, it is not clear whether there was ion exchange or partial decomposition. The mineral treated with benzidine hydrochloride is colored pale greenish-blue, which turns to intense blue.

A D.T.A. curve and loss of weight curve by E. P. Val'yashikhina are similar to those of saunonite, with a large endothermal break at about 200° and small exothermal breaks at about 765° and 920°. Willemite was found at 765°.

X-ray powder data are given (for sample No. 2). The strongest lines are 15.3 (10), 4.09 (7), 1.528 (6). After treatment with glycerol, the strongest line is at 17.6; after heating at 400°, this (001) line is at 10.0 Å. The (060) reflection gives  $b_0=9.17$  Å.

The authors consider the mineral to be the end-member of the series montmorillonite-saunonite-zincsilite, all analyzed saunonites containing 6% or more  $Al_2O_3$ , corresponding to the Mg series montmorillonite-saponite-beta-kerolite (most mineralogists would replace the ill-defined beta-kerolite by stevensite M.F.).

The name is for the composition.

DISCUSSION.—The formula derived is somewhat uncertain, because 15–30% impurities had to be deducted. The authors point out that the optics indicate some variation in composition and that Fe is probably present in the mineral, judging from the behavior when heated. Nevertheless, the formula deduced must be nearly correct. An exact analogy to stevensite must remain questionable because of the uncertainty of the ion-exchange data.

I would have preferred to extend the definition of saunonite to cover this composition, without the introduction of a new term, but the authors have followed the present practice as applied to Mg minerals.

M. F.

### Rozenite

J. KUBISZ. Rozenite,  $FeSO_4 \cdot 4H_2O$ , a new mineral. *Bull. acad. polonaise sci., Ser. sci. geol. geogr.*, 8, 107–113 (1960) (in English).

The mineral was found on the slopes of Ornak, Western High Tatra, as efflorescences on weathered gneisses containing pyrite, and in an old gallery of the "Staszic" pyrite mine at Rudki, Poland, where air temperatures were close to 30° C. At both places it was probably formed by the dehydration of melanterite. The mineral is colorless. Optically negative, 2V about 90°,  $n_s$  (Na)—Ornak  $\alpha'$  1.529,  $\gamma'$  1.543, "Staszic"  $\alpha'$  1.527,  $\gamma'$  1.5428. G. 2.195 ("Staszic"). Analysis from "Staszic" mine gave FeO 31.13, MgO 0.97, MnO

0.06, SO<sub>2</sub> 36.29, H<sub>2</sub>O 32.98, sum 100.43%, corresponding to FeSO<sub>4</sub>·4H<sub>2</sub>O. X-ray powder data are given; the mineral is isomorphous with ilesite and starkeyite (leonhardtite), D.T.A. and thermogravimetric curves are given. Synthetic FeSO<sub>4</sub>·4H<sub>2</sub>O is stated by Groth to be monoclinic.

DISCUSSION.—This is identical with siderotil, see Dana's System, 7th Ed., v. II, pp. 491–492, and is therefore an unnecessary name. Dana gives it as "FeSO<sub>4</sub>·5H<sub>2</sub>O (?). The water content is uncertain and the natural mineral may be the tetrahydrate." The optical data given by Kubisz agree perfectly with those given for siderotil.

M. F.

#### Magnesium szomolnokite

J. KUBISZ. Magnesium szomolnokite, (Fe, Mg)SO<sub>4</sub>·H<sub>2</sub>O. *Bull. acad. polonaise sci., Ser. sci. geol. geogr.*, **8**, 101–105 (1960) (in English).

An analysis, optics  $-ns$  (Na)  $\alpha$  1.558,  $\gamma$  1.629, and x-ray powder data are given for (Fe<sub>0.89</sub>Mg<sub>0.41</sub>)SO<sub>4</sub>·H<sub>2</sub>O from the "Staszic Mine," Rudki, Poland. The name magnesium szomolnokite is suggested.

DISCUSSION.—This should be called simply *magnesian* szomolnokite to avoid the difficulty that magnesium szomolnokite might be construed as meaning kieserite and to avoid separating it in indexes from szomolnokite.

M. F.

#### Hydronium jarosite

J. KUBISZ. Hydronium jarosite—(H<sub>3</sub>O)Fe<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>. *Bull. acad. polonaise sci., Ser. sci. geol. geogr.*, **8**, 95–99 (1960) (in English).

Kubisz gives a new analysis of a jarosite mineral from "Staszic Mine," Holy Cross Mt., which gives the formula [K<sub>0.16</sub>Na<sub>0.11</sub>(H<sub>2</sub>O)<sub>0.79</sub>]Fe<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>, and reviews earlier analyses. Material like this has been called carphosiderite (see Dana's System, 7th Ed., **1**, 566–567), with the ascribed formula (H<sub>2</sub>O)Fe<sub>3</sub>(SO<sub>4</sub>)<sub>2</sub>(OH)<sub>5</sub>·H<sub>2</sub>O. Since Moss (see *Am. Mineral.*, **42**, 586 (1957)) has shown that carphosiderite is an alkali-containing jarosite, it is suggested that this name be dropped in favor of hydronium jarosite.

M. F.

#### Sokolovite

A. K. SHAROVA AND A. K. GLADOVSKII. Mineral composition, genesis, and alteration of the Lower Cretaceous bauxites of the eastern slope of the Urals and the Turgaisk Plain. Bauxites, their mineralogy and genesis. *Akad. Nauk S.S.S.R., Otdel. geol.-geogr. Nauk*, **1958**, 70–79 (in Russian).

The mineral occurs in cavities between bauxite pebbles in the Sokolov deposits, eastern slope of the Middle Urals. It is snow-white, finely crystalline, weakly birefringent with birefringence 0.008, mean  $n$  1.623 ± 0.002, H. 2.5, G. 2.94. A D.T.A. curve shows a weak endothermal effect at 425° and a strong one at 575°. A heating curve shows losses of weight 4.46% at 325°, 10.68% at 500°, 16.92% at 650°, 19.54% at 900°, 20.58% at 1000° and 1200°; the  $n$  decreases steadily to 1.534 at 800°, then increases to 1.550 at 900°, 1.568 at 1000°, 1.630 at 1200°.

Analysis gave Al<sub>2</sub>O<sub>3</sub> 47.18, Fe<sub>2</sub>O<sub>3</sub> trace, CaO 6.23, SrO 10.77, MgO trace, P<sub>2</sub>O<sub>5</sub> 14.01, H<sub>2</sub>O 21.80, SiO<sub>2</sub>, TiO<sub>2</sub>, CO<sub>2</sub> traces, sum "99.90%." After subtracting 5.6% gibbsite, this corresponds to 2(Ca, Sr)O·4Al<sub>2</sub>O<sub>3</sub>·P<sub>2</sub>O<sub>5</sub>·11H<sub>2</sub>O, with Ca slightly in excess of Sr.

X-ray powder data are given. The strongest lines are 2.20 (s), 1.80 (s), 3.5 (m), 3.3 (m), 2.43 (m), 1.45 (m), 1.28 (m), 1.195 (m).

The name is for the deposit.

DISCUSSION.—Inadequate data. The mineral is similar in composition to goyazite.

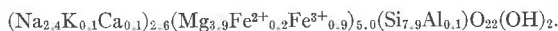
( $2\text{SrO} \cdot 3\text{Al}_2\text{O}_3 \cdot 2\text{P}_2\text{O}_5 \cdot 6\text{H}_2\text{O}$ ) and the analogous calcium mineral crandallite, but the *x*-ray pattern differs noticeably from the published data for these minerals. The *x*-ray pattern agrees rather closely with data published for svanbergite ( $2\text{SrO} \cdot 3\text{Al}_2\text{O}_3 \cdot \text{P}_2\text{O}_5 \cdot 2\text{SO}_3 \cdot 6\text{H}_2\text{O}$ ) and its calcium analogue, woodhouseite. It is not stated whether sokolovite was tested for sulfate. Material close to svanbergite in composition has been described from a bauxite deposit (see tikhvinitite, Dana's System, 7th Ed., vol. 2, p. 1006).

M. F.

### Rezhikite

M. V. SOBOLEVA AND N. D. SOBOLEV. Genesis and prospecting criteria of deposits of azure-blue rezhikite asbestos. *Sovetskaya Geol.*, 1959, No. 9, 94–104 (in Russian)

The name rezhikite is given to a deep blue amphibole asbestos, of which many deposits are known. Complete analyses are given of 13 samples; these show  $\text{SiO}_2$  54.36–57.97,  $\text{Al}_2\text{O}_3$  0.30–1.29,  $\text{Fe}_2\text{O}_3$  8.38–11.90,  $\text{FeO}$  0.72–3.66,  $\text{MgO}$  14.41–19.75,  $\text{CaO}$  (partly from calcite) 0.21–1.79,  $\text{Na}_2\text{O}$  7.80–10.24. The general formula is given as



Despite the variation in composition, the indices of refraction are stated to fall into the narrow range,  $n_s \alpha$  1.635–1.637,  $\gamma$  1.640–1.644, birefringence 0.005–0.007,  $c:Z=4-6^\circ$ ,  $2V$  small. The mineral is in composition near magnesioriebeckite and magnesioarfvedsonite (see *Am. Mineral.*, 43, 797–798 (1958)), but differs somewhat in optics.

The source of the name is not stated.

DISCUSSION.—Inadequate data, especially none on pleochroism. New names should not be given without a thorough comparison of all the data on this complex group.

M. F.

### Wöhlerite

G. P. VDOVYKIN. Preliminary results of luminescence-bituminological studies of four carbonaceous chondrites. *Akad. Nauk S.S.S.R., Meteoritika*, 18, 78–82 (1960) (in Russian).

The name wöhlerite is proposed for the organic matter found in carbonaceous chondrites. If this must be named, and I see no reason why it should be, it should have been possible to find a name not already pre-empted for a well-known mineral. The sodium-calcium-zirconium-niobium silicate wöhlerite was named by Scheerer in 1843.

M. F.

## NEW DATA

### Hsianghualite

A. A. BEUS. Geochemistry of beryllium and the genetic types of beryllium deposits. *Akad. Nauk SSSR, Inst. mineral., geokhim., i kristalloghim redkikh elementov* 1960, 1–329 (in Russian)

On pp. 60–61 is given a description of a mineral, described under the name Hsiang-huahshih (shih=stone) in *Am. Mineral.*, 44, 1327 (1959). The Russian transliteration of the name is Syankhualite (or syanhualite). The data given differ somewhat from those in the previous description.

Formula  $\text{Li}_2\text{Ca}_3\text{Be}_3(\text{SiO}_4)_5\text{F}_2$ . Analyses  $\text{SiO}_2$  35.66, 36.64;  $\text{CaO}$  34.60, 35.18;  $\text{BeO}$  15.78, 16.30;  $\text{Li}_2\text{O}$  5.85, 5.60;  $\text{Na}_2\text{O}$  0.13; 0.03;  $\text{K}_2\text{O}$  0.06, 0.03;  $\text{Al}_2\text{O}_3$  0.50, —;  $\text{Fe}_2\text{O}_3$  0.22, 0.06;  $\text{MgO}$  0.18, 0.17;  $\text{F}$  7.81, 7.27; loss on ignition 1.28, —; sum 102.07, 101.28—( $\text{O}=\text{F}_2$ ) 3.2, 3.06=98.87, 98.22%. Cubic,  $a_0$  12.897,  $H$   $6\frac{1}{2}$ ,  $G$ . 2.97–3.00,  $n$  1.613, no cleavage. Beus points out that  $n$  and  $G$ . are very high for this composition; the structure is not yet known.

M. F.