NEW MINERAL NAMES*

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Bentorite*


Analysis by S. Ertlich of a sample weighing 58 mg, which contained about 20% calcite and truscottite, gave CaO 29.90, MgO none, Cr2O3 7.48, Al2O3 1.01, Fe2O3 0.10, SO3 14.99, SiO2 2.50, CO2 6.70, H2O ±37.70, sum 100.38%. After deducting CO2 and CaO as calcite, and SiO2, CaO, and H2O as truscottite, calculation gave Ca4Cr(Al,Fe2)2Si4O14(OH)2.4·28H2O. The X-ray pattern was indexed on a hexagonal cell with a = 22.35, c = 21.42Å. The strongest lines (32 given) from the 2 localities are 10.81 (10), 10.84 (10X00l); 3.17 (7)(210, 120); 2.831 (e), 2.84 (8)(121, t22). Cleavage (001) perfect, {1010} distinct. D 2.025 meas., 2.021 calc. H=2. Optically uniaxial positive, ω 1.478, ε 1.484 (both ±0.002), absorption E > O, faintly dichroic, E pale violet, O nearly colorless, elongation positive, slightly anomalous interference colors in anomalous gray with a reddish-violet tint.

The mineral occurs rarely as fracture fillings cutting calcite-sparrite marble containing brownmillerite, mayenite, calcite, truscottite, jennite, tobermorite, aflatillite, and thaumasite, at two localities in the Hatrurim Formation, southern Israel. It was found by Gary Weingarten, curator of mineralogy, Fairleigh-Dickinson University. The name is for Y. K. Bentor, geologist, University of California, San Diego. Type material is preserved at the Geological Survey of Israel, Jerusalem, and at Fairleigh-Dickinson University, Madison, New Jersey.

Discussion

Authors give formula with 26 H2O and 12(OH) by analogy to ettringite. MF.

Ferrarisite*


Analysis by B. Reynier from Sainte Marie aux Mines by atomic absorption gave As2O3 49.3, CaO 30.6, MgO 0.52; H2O (thermo-gravimetric) 20.7, Penfield (18.1) = 101.1 or 98.9%. The DTA curve shows endothermic breaks at 90°, 150°, and 280°, and an exothermic break at 650°. The mineral dehydrates rapidly in air; dehydration to Ca5As2O13 was complete at 560°. The mineral dissolves readily in dilute HCl. Both the dimorphs have been synthesized by Guérin in 1941.

Ferrarisite is triclinic, space group P1̅, a = 8.294, b = 6.722, c = 11.198Å, α = 106.16, β = 92.94, γ = 99.20°, Z = 1, D calc. 2.57, meas. 2.63 ± 0.05 (by flotation). The strongest lines (31 and 33 given) from the 2 localities are 10.81 (10), 10.84 (100), 13.17 (7)(210, 120); 2.831 (9), 2.84 (8)(121, 122). Cleavage (001) perfect.

Colorless, transparent, becomes white on dehydration. Optically biaxial, positive ns n = 1.562, ∥ = 1.572, γ = 1.585 (all ±0.002), 2V = 83°, X ⊥ c = 17°, Z ⊥ (110).

The mineral occurs at the Gabe Gottée and the Gift mine (type locality), Sainte Marie-aux-Mines, Alsace, France, associated with picropharmacolite and rauenthalite, also at the Anton mine, Wittichen, Baden, Germany, described without a name by Walenta *(Am. Mineral 58; 561 (1973)).*

Type material (Gift mine) is at the École Natl. Superieure des Mines, Paris: from Wittichen at the University of Stuttgart. MF.

Lanthanite—(Nd)*


Analysis gave Nd2O3 21.84, La2O3 19.44, Pr2O3 5.18, Sm2O3 4.10, Gd2O3 1.69, Eu2O3 1.64, Dy2O3 0.44, Y2O3 0.22, Ce2O3 0.03, ThO2 0.03, CO2 22.15, H2O 27.75, sum 99.81%, corresponding to (Nd,La)2(CO3)3·8H2O with Nd: La: Pr = 0.40:0.365:0.096. The mineral is decomposed with effervescence by dilute HCl. The DTA shows endothermic breaks at 119° (loss of H2O), 500° (loss of 2CO2), and 766° (loss of 1CO2).

X-ray study showed it to be orthorhombic, space group Pbnm, a = 9.476, b = 16.940, c = 8.942Å, Z = 4, D calc. 2.82, meas. (Berman balance) 2.81. The strongest X-ray lines (47 given) are 8.50

* Minerals marked with asterisks were approved before publication by the Commission on New Minerals and Mineral Names of the International Mineralogical Association.
The mineral occurs as bright pink crystals, luster vitreous to pearly, H 2.5–3, not fluorescent. Cleavage {010} perfect, {101} very good, crystals are twinned on {101}. Optically biaxial, negative, ns α = 1.532, β = 1.590, γ = 1.614, 2V = −61°, X = b, Y = c, Z = a.

The mineral occurs near Curitiba, Parana, Brazil, in recent carbonate-rich sediments, as described by Cesbron et al., Bull. Mineral 102, 342–347 (1979). The name is for the composition. Type material is at the National Mineral Collection, Geological Survey Canada, Ottawa, and at Pierre and Marie Curie University, Paris. M.F.

**Macquartite**


Quantitative probe analyses showed the presence of Pb, Cu, Cr, and Si. Microchemical analyses were made by atomic absorption for Pb, Cu, and for Zn (present as willemite) in acid-soluble material, for soluble SiO₂ by spectrophotometry, and for H₂O by the Penfield method. These gave PbO 67.6, CuO 7.8, CrO₃ 10.5, SiO₂ 4.9, H₂O 7.3, total 98.1%, after deducting SiO₂ equivalent to the ZnO found. This corresponds to PbCu₃Cr₄O₆(OH)₂·2H₂O.

The mineral is decomposed by 40% HClO₄ or conc. HCl, dissolved by HClO₄ + HF.

Weissenberg and rotation photographs show the mineral to be monoclinic, space group C₂/m, C₂, or Cm, probably C₂/m. The unit cell has a = 20.81, b = 5.84, c = 9.26 Å, β = 91°48′, Z = 4, D calc. 5.58, meas. 5.49. The strongest X-ray lines (34 given) are 4.822 (9)(111), 4.628 (9)(002), 3.156 (10)(511), 3.090 (6)(003), 2.925 (5)(020), 2.768 (5) (S12). Color orange cadmium (RHS 23A), streak pale orange, H. 3.5. Cleavage {100} good. Optically biaxial, negative, ns α = 2.28, β = 2.31, γ = 2.34, 2V = 85°, Y = b, X/C = +35°. Readily mistaken for mimetite.

The mineral occurs on diopside from Tiger, Arizona, in euhedral crystals up to 1 mm long, usually enclosed in quartz.

The name is for Louis Charles Henri Macquart, French chemist (1745–1803), who brought to France from Russia the samples of rhodonite ore, associated with rhodochrosite, barite, barium roscoelite, an unnamed Ba-analogue of haradaite, and alabandite.

The name is for Otokichi Nagashima (1890–1969), “the pioneer of Japanese amateur mineralogists”. Type material is at the National Science Museum, Tokyo. M.F.

**Putoranite**


Microprobe analyses (using Ni and chemically analyzed chalcopyrite) of seven different samples of putoranite gave Cu 34.99–36.17 (35.68 ± 0.30), Fe 30.76–32.29 (31.27 ± 0.30), Ni 0.37–0.70 (0.51 ± 0.07), S 32.01–33.17 (32.49 ± 0.24), sums 99.5–100.99% (99.90) and 12 different samples of nickel-oan putoranite gave Cu 32.25–33.96 (32.99 ± 0.37), Fe 31.63–32.89 (32.11 ± 0.36), Ni 1.47–1.98 (1.63 ± 0.08), S 32.14–33.75 (33.14 ± 0.31), sums 98.83–100.85% (99.87). These correspond to Cu₃(Fe,Ni)₉S₈ and Cu₁₅(Fe,Ni)₁₈S₃₂, respectively, or to Cu₁₆(Fe,Ni)₁₈₋₁S₃₀₋₉₂, or to Cu₁₆₋₂(Fe,Ni)₁₈₋₂S₃₀₋₉₂.

Putoranite and the nickel-oan variety give identical powder X-ray patterns (α = 5.30 Å), also identical with that of the primitive cubic synthetic phase (Cabri, L. J., 1973, Econ. Geol., 68, 443–454). Strongest X-ray lines (9 given) are 3.05(10)(220), 1.875(5)(311), 1.596–1.597(6)(311), 1.081(5)(422). The patterns include a weak line at 3.74 Å, required for the primitive cubic cell, representing a partly ordered phase derived from a completely disordered solid solution with a face-centered cubic cell, known to occur in the central part of the Cu–Fe–S system at high temperatures.

The mineral occurs in the massive mooihoekite ores of the Oktyabr deposit, Noril’sk district, in close association with mooihoekite (often in excess thereof) and talnakhite, and had been first described under the provisional names “cubic chalcopyrite” and “anomalously anisotropic cubic chalcopyrite” (Filimonova et al., 1974, Geol. Rudn. Mestorozhd., No. 5, 36–46). Macroscopically the mineral is similar to mooihoekite and talnakhite; and nickel-oan putoranite oxidizes quickly in air, like talnakhite, producing a variegated tarnish. In reflected light the mineral is similar in color and reflectance to mooihoekite. Reflectances (percent), on freshly polished sections, for putoranite and nickel-oan putoranite are: 440
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Sodium Phlogopite


The mineral occurs in a light-colored fine-grained massive, sugar dolomite that contains large euhedral, platy twins of albite up to 2 cm in length and small silvery flakes of phyllosilicates. Under the microscope are seen stubby, often nearly equidimensional books of micas about 0.1 mm in diameter, which are sodium phlogopite with very fine rims of normal (K) phlogopite. Also present are a talc–chlorite mixed-layer phase and talc, also euhedral crystals of pyrite and small rounded grains of tourmaline.

Microprobe analyses of 10 samples gave (range and average %) SiO$_2$ 41.36–44.57; TiO$_2$ 0–0.84, 0.48; Al$_2$O$_3$ 12.38–13.77; MgO 28.13–29.22; CaO 0.07–0.56, 0.20; Na$_2$O 5.43–6.52, 5.82; K$_2$O 0.30–1.22, av. 0.49; sum 90.84 to 92.99% (to which the theoretical content of water (4.49%) should be added. The rock contained 33 ppm Li, so that it is probable that some was present in the mica. F and Cl were not detected.

The analyses average (Na$_1.55$K$_{0.09}$Ca$_{0.02}$)(Mg$_{5.99}$Ti$_{0.05}$Al$_{0.11}$)(Si$_{6.50}$Al$_{2.00}$)O$_{20}$(OH)$_4$. No other data are given. M.F.

Unnamed Alloys


Native metals and intermetallic compounds were found as thread-like wires and pellet-like forms in zeolitized tuffs containing clinoptilolite and mordenite in 4 deposits. Their compositions are stated to have been determined by microprobe analyses, which are not given. In addition to native Pb, Zn, Cu, Fe, and Sb, it is stated that Cu$_2$Zn$_3$, Cu$_4$Zn$_5$, and Sb$_2$As$_1$Sn were found. M.F.