NEW MINERAL NAMES*

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Cameronite*


Two closely matching microprobe analyses of cameronite, ideally Cu₄AgTe₄, give an average of Cu 24.45, Ag 6.34, Te 69.11, sum 99.90 wt%, corresponding to the formula Cu₄AgTe₄ assuming 10 Te atoms. Single-crystal X-ray study indicates tetragonal symmetry, a = 3.342 (100)(307), c = 7.42 (100)(33.14, 600), 1.804 (60)(637), 1.377 (60)(63.21, 907), and 1.222 (60)(93.14).

In hand specimen, cameronite resembles tetrabedrite: opaque, gray, metallic, brittle, subconchoidal fracture, no cleavage, calculated Mohs’ hardness 3½–4, VHN100, 163 (150–170), VHN50, 151–172. In reflected light, slightly bireflectant and pleochroic from pale gray to pale brownish gray; anisotropism distinct with colors in air from medium gray to slate gray to brownish gray. Reflectance spectra in air and in oil; average values in air in 50-nm steps from 400 to 700 nm for Rₐ, R₆ are 23.8, 28.2; 27.8, 31.6; 30.6, 33.2; 31.9, 33.5; 32.7, 33.3; 33.1, 33.2; 33.4, 33.2. Bireflectance positive 10⁻⁴, 10⁻⁵; X₀: 1.457 (2) and 1.506(2) could not be measured because of the fine-grained nature of the material. In thin section the mineral is colorless and transparent.

Cameronite masses up to 2 × 2 mm are associated with native tellurium, rickardite, vulcanite, arsenopyrite, and pyrite. The ore curve exhibits three inflections as well as pinkish to yellowish-green loose coatings. Grains do not exceed 0.05 mm in longest dimension and are translucent to transparent.

Chvaleticeite*


Classical chemical analyses gave MnO (by titration) 15.81, MgO (by EDTA titration) 6.41, CaO 0.04 (by AAS), FeO trace, Fe₂O₃ (by AAS) 0.10, Al₂O₃ trace, K₂O (by AAS) 0.005, Na₂O (by AAS) 0.011, SO₃ (determined gravimetrically as BaSO₄) 31.48, P₂O₅ trace, H₂O* (by modified Penfield method) 0.37, H₂O* (by modified Penfield method) 45.22, insoluble 0.36, sum 99.81 wt%.

* Minerals marked with asterisks were approved before publication by the Commission on New Minerals and Mineral Names, International Mineralogical Association.

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Erlianite*


Analysis by colorimetric microanalysis yielded SiO₂ 38.80, FeO 26.67, Fe₂O₃ 21.26, V₂O₅ 1.15, MgO 1.00, CaO 0.83, MnO 0.53, P₂O₅ 0.051, K₂O 0.079, Na₂O 0.09, Al₂O₃ 0.19, TiO₂ 0.38, H₂O* 7.65, H₂O* 0.90, sum 99.60 wt%. Major-element contents were confirmed by electron-microprobe analysis. K, Na, Ca, P, and H⁺ are assumed to be minor contaminants or interlayer elements. The provisional empirical formula is (Fe₅₋₉Fe₂₋₉Mg₁₋₉Mn₁₋₉OO₋₂)₂₋₃₋₄ₓ (Fe₇₋₉Fe₁₋₉Mg₃₋₉Mn₁₋₉₉)₂₋₃₋₄ₓ (Fe₇₋₉Fe₁₋₉Mg₃₋₉Mn₁₋₉₉)₂₋₃₋₄ₓ (Si₁₋₉₉Ti₉₋₉₉Al₂₋₉₉Fe₂₋₉₉)₂₋₃₋₄ₓ (OH,PO₄)₄₋₉₉. The mineral is soluble in dilute HCl. The TGA curve is smooth, and the lack of a distinct exothermic peak shows that the water contained in the mineral escaped slowly. The water content may therefore be deplorable. A.C.R.
exothermic peaks at 320, 720, and 940°C. At 320°C the crystal structure was destroyed and quartz was found; at 720°C no new phase was produced; and at 940°C the specimen was converted to quartz and hematite. Data from Mössbauer and infrared spectrosopy are also presented.

Selected-area electron-diffraction patterns gave unit-cell data of \( a = 23.2, b = 9.2, c = 13.2 \) Å and indicated the space group to be \( Pmn 2_1 \) or \( Pm2_1n \). No suitable crystals have been found for a single-crystal diffraction study. X-ray powder diffraction data show the mineral to be orthorhombic with unit cell \( a = 23.20(0.01), b = 9.20(0.01), c = 13.18(0.01) \) Å, \( \beta = 2813 \) Å, and \( Z = 1 \). The strongest lines (27 given) are 11.5(100)(200,101), 3.05(50)(223,130), 2.89(60)(603,800,231), 2.61(60)(523,105,332,224), 2.52(50)(324,901,115,033,531), and 2.42(30)(424,803,614,821).

Erlianite is found at the Harhada iron mine along the Jining-Erlian railway, Inner Mongolia Autonomous Region, People's Republic of China. The mineral occurs sparingly in a fractured zone within the upper part of the deposit. Associated minerals include magnetite, minnesotaite, stilpnomelane, deerite, quartz, siderite, albite, and other phases. The distribution of erlianite is closely related to structural features, and it is often developed in thin crystals with a vitreous luster and white streak; H = 4. Optically it is biaxial negative and biaxial with a : 1.72, \( \beta : 1.81, \gamma : 1.82 \); 2V = 85°. Optical orientation: Z = c and X = D (perpendicular to the cleavage planes).

Erlianite is opaque, fibrous, flakes, and lathlike aggregates. Color black, streak brownish gray, and luster silky. The grain size is 1–2 cm. The mineral is not fluorescent; it has two perfect cleavages on \{001\} and \{100\}. H = 3.7, \( D_{\text{meas}} = 3.11 \). In thin section the mineral is brown with moderate relief. Biaxial negative, \( \alpha = 1.667, \beta : 1.674, \gamma : 1.679 \); 2V = 56-59°. The orientation is \( X = b, Y = c, \) and \( Z = a \). Slightly pleochroic with Z = (dark brown) = I (dark brown) > X (light brown). Weak dispersion with \( r < V \); either positive or negative elongation. Most elongate sections show parallel extinction, although extinction angles up to 29° have been measured. J.E.S.

**Hochelagaite**


Microprobe analyses of four globules of the mineral gave CaO 6.3–7.7, SrO 0.0–1.2, Na2O 0.0–1.3, Nb2O5 7.1–7.83, TiO2 1.2–1.5, Al2O3 0.0–0.8, SiO2 0.4–1.5. H2O (by diffr.) 10.3–18.9, corresponding to the formula \( (\text{Ca},\text{Na})\text{Sr} (\text{Nb},\text{Ti},\text{Si},\text{Al})_\text{O}X (\text{OH})_Y (\text{Nd}^2+)_Z \) \( (n = 87) \).

Owing to the fine grain size of the mineral, single-crystal X-ray studies were not undertaken. The powder pattern was indexed on the basis of similarity of the mineral with francolite and gave \( a = 19.88, b = 12.83, c = 6.44 \) Å, \( \beta : 93.3° \), with \( Z = 4 \). The six strongest powder-diffraction lines are 10.0(100), 3.115(80), 3.208(70), 3.539(50), 4.969(50), and 2.799(40).

Hochelagaite occurs as white globules, 150 µm across, in vugs of a dawsonite-bearing silt in the Franconia limestone quarry, Montreal, Quebec. The globules mainly consist of radiating bladed crystals with a vitreous luster and white streak; H = 4. Optically it is biaxial with \( \alpha = 1.72, \beta = 1.81, \gamma = 1.82 \); 2V = 35°. Optical orientation: Z = c and X = b (perpendicular to the blades). \( D_{\text{meas}} = 2.85–2.94, D_{\text{calc}} = 2.82–2.88 \).

The mineral is named after the original name for Montreal (Hochelaga).

Holotype specimens are deposited in the National Mineral Collection at the Geological Survey of Canada (64285 and 64288) and at the Royal Ontario Museum (M37547, M37548). R.A.S.

**Hydrodelhayelite**


Chemical analysis gives SiO2 55.53, TiO2 0.01, Al2O3 8.46, Fe2O3 0.65, MnO 0.18, CaO 12.72, SrO 0.22, MgO 0.21, Na2O 0.22, K2O 6.18, F 0.00, Cl 0.15, H2O = 9.62, H2O = 5.85. The sum equals 99.64 wt%, corresponding to the idealized formula \( \text{KCa} (\text{Si},\text{Al})_\text{O}X (\text{OH})_Y \text{H}_2 \text{O} \).

Hydrodelhayelite is orthorhombic, \( a = 6.648, b = 23.846, c = 7.073 \) Å, space group \( Pnm2_1n \), \( Z = 2 \). The strongest lines in the X-ray powder pattern are 2.923(100), 3.069(75), 2.800(55), 3.199(43), and 6.79(38).

The mineral occurs as an alteration product of delhayelite in an iolite-urnrite pegmatite of the Khibina alkaline massif; greenish-gray delhayelite alters to grayish-white hydrodelhayelite in the supergene zone. Hydrodelhayelite is grayish white with a vitreous luster; H = 4. It has three orthogonal cleavages with (010) very perfect, (100) imperfect; \( D = 2.168 \text{ g/cm}^3 \). It is biaxial with \( \alpha = 1.503, \gamma = 1.518 \).

The name is for the composition and its relationship to delhayelite. F.C.H.

**Kimrobinsonite**


Electron-microprobe analysis gave Na2O 0.7, FeO 0.4, Sb2O3 0.7, Ta2O5 78.5, Nb2O5 6.6. Adjusted values from CHN microanalysis gave H2O 8.9, CO2 4.2. The sum equals 100.0 wt%. The ideal formula is \( (\text{Ta},\text{Nb})(\text{OH})_X (\text{O},\text{CO3})_Y \), with \( x = 1.2 \).

X-ray analysis revealed a primitive isometric cell of the perovskite type with \( a = 3.812(1) \) Å, \( D_{\text{calc}} = 6.865 \) (law of Gladstone and Dale), \( Z = 1 \). The strongest lines (21 given) are 3.808(100), 3.598(75), 2.923(100), 3.069(75), 2.800(55), 3.199(43), and 6.79(38).

Kimrobinsonite occurs in aggregates of cryptocrystalline white individuals whose luster is dull and chalky; the material has a white streak. Friable and soft (VHN 70 with a 20-g load), the mineral is isotropic.

The name honors Mr. Kim Robinson of Perth, who discovered the material in weathered pegmatite near Mt. Holland in Western Australia (32°10'S, 119°44'E). Kimrobinsonite occurs intergrown with cestibutinite as a mass in the skeletal void of a precursor Ta-Sb mineral of unknown identity. Associated minerals in the pegmatite include montmorillonite, K-feldspar, lithium-bearing muscovite, tourmaline, and several rare-element-bearing minerals. Type material resides at the Government Chemical Laboratories of Western Australia, the British Museum of Natural History, and the Smithsonian. K.W.B.

**Lapharnite**


Analysis by electron microprobe gave As 47.0, Se 43.7, S 8.7,
sum 99.4 wt%. Although Se always dominated, crystals displayed variable Se:S ratios. The ideal formula is As$_n$(Se$_3$)$_n$.

X-ray analysis reveals a monoclinic lattice, $P2_1/n$, with $a = 11.86(1), b = 9.756(9), c = 4.265(9), \beta = 90.17(30)^\circ$, $Z = 4$, $D_{\text{calc}} = 4.60$, $D_{\text{meas}} = 4.5(1)$ g/cm$^3$. The strongest lines (42 given) are 2.83(300)(221, 222), 2.77(80)(311, 311), 4.87(70)(020), 2.905(60)(301, 301), 1.777(50)(051, 032), and 1.709(50).

Laphamite occurs as dark red, resinous, prismatic crystals (< 5 mm). The larger crystals are nearly opaque. The streak is red-orange; crystals are flexible but not elastic. Cleavage on (010) is perfect. Laphamite is so malleable that hardness could only be determined as “soft.” Crystals are tabular on (010), are elongate on [010], and are composed of the forms {100}, {110}, and {301}. Many of the crystals resemble resorbed solids.

In plane-polarized light (3200 K) in polished section, laphamite is moderately bireflectant from white to gray. Strong, fiery-red internal reflections and golden-yellow reflections along scratches are characteristic. On (001), anisotropism is moderate with gray tints during rotation. Reflections in air: 400 (34.4, 42.1), 420 (33.9, 41.0), 440 (33.8, 39.9), 460 (33.8, 38.75), 480 (33.2, 37.45), 500 (32.3, 36.3), 520 (30.9, 35.1), 540 (29.5, 34.0), 560 (28.45, 33.1), 580 (27.6, 32.3), 600 (26.9, 31.55), 620 (26.4, 31.1), 640 (26.4, 30.9), 660 (26.3, 30.6), 680 (26.1, 30.4), and 700 nm (25.9, 30.1) (R$_1$ and R$_2$, respectively). Color values for the CIE illuminant C are Y$_b$ = 29.0, 33.5; $\lambda$ = 480, 478; P$_R$ = 9.1, 8.7 for R$_1$ and R$_2$, respectively.

Laphamite occurs with opaline, arsenolite, and NH$_4$AlF$_3$ on a cinder found at the surface near a gas vent from a burning coal-waste dump at Burnside, Northumberland County, Pennsylvania (40°46′14″N, 76°34′12″W). The name honors Dr. David M. Lapham, former Chief Mineralogist of the Pennsylvania Geological Survey. Type material resides at the Smithsonian Institution (catalogue no. 163039) and at the British Museum (E. 1036, BM 1984, 843). K.W.B.

**Mathewrogersite**


Combined results of electron-microprobe analysis and elemental analysis (for $\text{H}_2\text{O}$) gave PbO 57.5, MgO 0.1, FeO 1.7, CuO 0.8, Al$_2$O$_3$ 5.9, GeO$_2$ 3.9, SiO$_2$ 26.2, $\text{H}_2\text{O}$ 1.9, sum 98.0 wt%, corresponding (on the basis of 12 Si atoms) to Pb$_{7.0}$Fe$_{0.05}$Cu$_{0.28}$Mg$_{0.07}$Ge$_{0.07}$Al$_{1.8}$Si$_{11.8}$O$_{31.8}$H$_{3.8}$, or idealized Pb$_3$(Fe$_{0.5}$Cu$_{0.5}$)Ge$_{0.07}$Al$_{1.8}$Si$_{11.8}$O$_{31.8}$H$_{3.8}$.$\text{H}_2\text{O}$$_{3}$.$\text{H}_2\text{O}$.

Single-crystal X-ray study with several methods shows the mineral to be hexagonal, with possible space groups R3, R3, R3$_2$, R, and R$_3$$_2$, respectively. Strongest eight lines in the powder pattern are 6.57(100), 4.00(50), 3.283(55), 3.190(50), 2.356(45b), 2.862(40), 2.551(40b), and 2.841(40). TEM reveals twin lamellae approximately 50 Å wide parallel to a net plane with translations of 7.14 and 6.55 Å and an interrow angle of approximately 77.5°.

Montroyalite occurs as white translucent 1-mm-sized hemispheres in cavities in a silicocarbonatite sill exposed at the Francol quarry, Montreal, Quebec. Indistinct fibers radiate from the cores of these hemispheres. Individual grains are irregular to lath shaped, up to 20 μm long and 5 μm thick. Brittle. White streak. Uneven to splintery fracture and no visible cleavage. Soluble in 1:1 HCl and fluoresces white under both long- and short-wavelength ultraviolet light. $H = 3.5$, $D_{\text{meas}} = 2.677$. Montroyalite is biaxial and negative, $\alpha = 1.515$, $\beta = 1.530$, $\gamma = 1.545$; $2V_{\text{meas}} = 80^\circ$, $2V_{\text{calc}} = 89^\circ$. Y nearly parallel to elongation of lath; $X$ and $Z$ make angles of about 45° with the plane of the lath.

Major associated minerals: albite, quartz, strombolid, calcite, dawsonite, ankerite, and fluorite.

Montroyalite is named after the Montreign hill Mont Royal, a landmark in Montreal. Type material is deposited in the Systematic Reference Series of the National Mineral Collection at the Geological Survey of Canada, Ottawa, under the catalogue numbers 64261 and 64265. R.A.S.

**Moolooite**


Partial microchemical analysis by CHN analyzer gave C 14.10 and H 0.52% corresponding to $\text{C}_8\text{O}_4$, 42.3 and $\text{H}_2\text{O}$ 4.65%. A chemical microtest for the oxalate radical gave a positive result. Cu and Si were detected by microprobe scan but could not be determined quantitatively owing to rapid sample degradation under the electron beam. Si is variable and attributed to intergrown opaline silica. Assuming sufficient Cu$^{2+}$ for stoichiometry requires CuO 46.7, $\text{C}_8\text{O}_4$ 42.3, $\text{H}_2\text{O}$ 4.65, total 93.6 wt%. Assuming that the shortfall from 100% is due to silica impurity, the derived empirical formula is Cu$_{28.8}$O$_{28.8}$.$\text{H}_2\text{O}$. The general formula is Cu$_{28.8}$O$_{28.8}$.$\text{H}_2\text{O}$ with $0 \leq n < 1$ and $Z = 1$. Extensive studies of the analogous artificial compound indicate that
the water is zeolitic and not essential to maintaining structural integrity.

The material is too fine grained for single-crystal study. Orthorhombic unit-cell parameters, \( a = 5.35, b = 5.63, c = 2.56 \) Å, were calculated with reference to the artificial compound \( \text{CuCO}_3 \cdot 0.1\text{H}_2\text{O} \) (PDF 21-297). The strongest lines of the X-ray powder pattern (25 given) are \( 3.88(100),(110), 2.50(30),(120), 2.33(18),(011), 2.31(25),(101), 2.14(20),(111), 1.938(18),(220), 1.787(25),(120), 1.753(30),(211) \).

Moolooite occurs as variable blue-green microconcretions that have a dull to waxy luster. Individual crystallites are lathlike or prismatic in shape and are less than 1 µm in size. D". : 3.43.

Obradovicite occurs on brecciated and leached vein-quartz and on crusts of jarosite. Tiny wulfenite crystals are also associated with obradovicite. Known only from Chuquicamata, Chile, the mineral is named for Martin T. Obradovic from whose collection the type material came. Type material resides at the Colorado School of Mines Museum, the Smithsonian, and the Mining Museum inCopiapó, Chile. K.W.B.

**Orthoserpierite**

H. Sarp (1985) Orthoserpierite \( \text{Ca}^{(\text{Cu},\text{Zn})}_{5} \text{(SO}_4\text{)}_3\text{(OH)}_4 \cdot 3\text{H}_2\text{O} \), a new mineral from the Chessy mine, France; a polymorph of serpierite. Schweiz. Mineral. Petrogr. Mitt., 65, 1-7 (in French).

Electron-microprobe analysis gave \( \text{CuO} 43.61, \text{CaO} 9.33, \text{ZnO} 7.29, \text{SO}_4 21.20, \text{H}_2\text{O} \) (by difference) 18.57, which yields a formula (based on 17 oxygen atoms) of \( \text{Ca}_9\text{Cu}_{24}\text{Zn}_{2}\text{O}_{40}\cdot \text{S}_{17} \text{O}_{17} \cdot 3\text{H}_2\text{O} \).

Single-crystal and powder X-ray diffraction studies show the mineral to be orthorhombic, space group \text{Pca}_{2} \_2, unit cell \( a = 22.10(2), b = 6.20(2), c = 20.39(2) \) Å, \( Z = 8 \). The strongest X-ray lines (48 given) are 10.21(100),(002), 5.10(90),(004), 4.30(90),(006),(121), 3.148(50),(513), 2.610(50),(117),(423), 2.558(50),(217),(803),(008), 2.511(40),(521),(423),(811), 2.384(40),(424), and 2.111(35),(119),(426),(010). Single-crystal and powder X-ray diffraction studies show the mineral to be orthorhombic, space group \text{Pca}_{2} \_2, unit cell \( a = 22.10(2), b = 6.20(2), c = 20.39(2) \) Å, \( Z = 8 \). The strongest X-ray lines (48 given) are 10.21(100),(002), 5.10(90),(004), 4.30(90),(006),(121), 3.148(50),(513), 2.610(50),(117),(423), 2.558(50),(217),(803),(008), 2.511(40),(521),(423),(811), 2.384(40),(424), and 2.111(35),(119),(426),(010). Single-crystal and powder X-ray diffraction studies show the mineral to be orthorhombic, space group \text{Pca}_{2} \_2, unit cell \( a = 22.10(2), b = 6.20(2), c = 20.39(2) \) Å, \( Z = 8 \). The strongest X-ray lines (48 given) are 10.21(100),(002), 5.10(90),(004), 4.30(90),(006),(121), 3.148(50),(513), 2.610(50),(117),(423), 2.558(50),(217),(803),(008), 2.511(40),(521),(423),(811), 2.384(40),(424), and 2.111(35),(119),(426),(010).
otijusmeite, and schauteite. The otijusmeite crystals are up to 1 mm in length and have a diameter of less than 0.1 mm; they are elongated parallel to the c axis, and they have a columnar to fibrous habit; they usually form radiating aggregates. Weak (001) cleavage.

The mineral is white or colorless and often translucent, with greasy luster. H about 3. Its optical properties are biaxial positive.

Type material is at the Institute of Mineralogy and Crystal Chemistry.

Spheneididite*


Analysis by X-ray fluorescence spectrometry and pyrolysis methods yielded (after correction for SiO2, TiO2 impurities) Al2O3 9.33, FeO (total Fe) 30.10, CaO 0.50, MgO 0.30, K2O 4.45, (NH4)2O 3.27, P2O5 32.42, H2O (105°C) 5.84, H2O (105-1000°C) 13.79, sum 100.0 wt%. This corresponds to (NH4)2O*K3Al3Si3O10(PO4)(OH)2·H2O or (NH4)2O*(Fe3+Al2)(PO4)(OH)2·H2O. The mineral is soluble in acids and is very soft. D~: 2.71.

Kitaibelite

New Data

Cestibタンite


Electron-microprobe analysis gave Na2O 2.2, Cs2O 6.5, FeO 0.1, Sb2O3 17.0, Ta2O5 65.3, Nb2O5 5.1, H2O 1.9 (calculated to maintain electrical neutrality as OH2), sum 98.1 wt%.

The material of this occurrence differs from material described elsewhere in that it is black and opaque, except in the very thinnest particles. K.W.B.
Ganomalite

Electron-microprobe analysis of four ganomalite specimens from Franklin and seven from Jacobsberg gave, on average, SiO₂ 19.46, CaO 11.17, PbO 67.69, MnO 2.18, with traces of MgO, BaO, Cl, and Al₂O₃, sum 100.5 wt %. With Mn present in a relatively constant 1 to 5 ratio with Ca, a new formula of Pb₇Ca₃MnSiO₇ is indicated, with Z = 1.

Preliminary crystal-structure data indicate that the Mn and Ca are ordered, as implied by the chemical analysis; ganomalite is hexagonal, space group P3, with a = 9.82 and c = 10.13 Å. D.P.

Glaucocerinite

Chemical analysis on the type specimens of glaucocerinite from Laurion, Greece, yields the formula [(Zn,Cu)₆Al₆(OH)₁₀][(SO₄)₅·₉H₂O], based on a pyroaurite-like structure.

The strongest lines in the X-ray powder pattern, indexed on a hexagonal pseudocell, are 10.9(100)(003), 5.45(90)(006), 3.63(80)(009), 2.62(60)(012), 2.46(60)(015), 2.23(50)(018), and 1.98(50)(011). Optical data are 2V ≈ 60°, α = 1.540, β = 1.554, γ = 1.562; Dmax = 2.40 ± 0.1 g/cm³, Dmin = 2.33 g/cm³.

The authors also present evidence that a so-called "woodwardite" from Caernarvonshire, Wales, is a Cu analogue of glaucocerinite, and an 11-Å mineral occurring with carrboydite in Western Australia is the Ni analogue. D.P.

Likasite

The crystal structure of likasite was determined and refined to an R index of 10.8% for 1017 reflections. The chemical formula was revised from Cu₃(OH)₆(NO₃)₂·2H₂O to Cu₃(OH)₆(NO₃)₂·2H₂O. F.C.H.

Motukoreaite

The average structure of motukoreaite was determined and refined to an R index of 11.4% for 336 observed reflections. The unit-cell dimensions are a = b = 9.172, c = 33.51 Å; space group R3m. F.C.H.

Rhodizite

The crystal chemistry of rhodizite was re-examined using data from high-resolution electron microscopy (HREM), magic-angle-spinning nuclear magnetic resonance (MAS-NMR), single-crystal X-ray structure refinement, and a new chemical analysis. Material from Ambatofinandrahana, Ankarantha Mountains, Madagascar (20°33'5, 46°49'E), has the formula (K₀.₃Ca₀.₃Sr₀.₃Ba₀.₂Na₀.₂Mg₀.₂Al₀.₉₆Be₀.₁₁Be₀.₁₁Li₀.₀₂)O₁₆, is cubic with a = 7.318(1) Å and has space group P4/m. A lengthy discussion of the crystal-chemical aspects of the rhodizite structure is presented. A.C.R.

Rosasite

The unit cell of rosasite, (Cu₂Zn)₃CO₃(OH)₅, was determined and refined to a = 12.873(3), b = 9.354(3), c = 3.156(2) Å; β = 110.36(3)°; space group P2/a. F.C.H.

Santafeite

Santafeite, originally described by Sun and Weber (1958) from the Grants uranium district, McKinley County, New Mexico, was re-examined using single-crystal and microprobe techniques. The new idealized formula, consistent with equipoint rank requirements for space group B222, is (Mn²⁺⁺Fe³⁺Al,Mg), (Mn²⁺⁺Mn³⁺),(Cu,Sn),,(VO₄),,(AsO₄),,(OH)₂, 8H₂O. A microprobe analysis yielded Al₂O₃ 1.1, Fe₂O₃ 1.1, MgO 0.9, CaO 5.2, SrO 8.5, Na₂O 5.0, V₂O₅ 36.5, As₂O₅ 3.2, MnO 16.5, MnO 13.3, H₂O 8.8, sum 100.1 wt %. In determining the formula, the H₂O content and the Mn²⁺/Mn³⁺ ratio reported in the original description of this mineral were used. This analysis corresponds to (Mn₂⁺⁺Fe³⁺Al,Mg),,(Mn²⁺⁺Mn³⁺),(Cu,Sn),,(VO₄),,(AsO₄),,(OH)₂, 8H₂O or to the simplified formula given above.

X-ray diffraction data confirmed the unit cell and space group of santafeite as originally reported, but also showed that there is significant disorder in the crystal structure. A structural analysis is needed to clarify several uncertainties regarding the structure and crystal chemistry of the mineral. J.E.S.

Schneiderhöhnte

from the Tsumeb mine, Namibia, yielded the following results. The mineral is triclinic, space group P1, a = 8.924, b = 10.016, c = 9.103 Å, α = 59.91, β = 112.41, γ = 81.69°, V = 590.8 Å³; Z = 2. Structure refinement to a final residual R of 4.5% on 3184 unique observed (I > 2σ(I)) reflections. The determination of the structure leads to the new formula Fe⁴⁺Fe³⁺As³⁺O₄ instead of the previously reported Fe⁴⁺As⁴⁺O₄ (Am. Mineral., 59, 1139). A survey of recently refined arsenite minerals shows a constant geometry for the arsenite group with (As–O) = 1.776 Å and (O–As–O) = 97.2°. E.A.J.B.