New Mineral Names*

JOHN L. JAMBOR† AND ANDREW C. ROBERTS²

1Department of Earth and Ocean Sciences, University of British Columbia, Vancouver, British Columbia V6T 1Z4, Canada
2Geological Survey of Canada, 601 Booth Street, Ottawa K1A 0E8, Canada

ARTSMITHITE*


Electron microprobe analysis gave Hg₂O 78.28, Al₂O₃ 5.02, P₂O₅ 11.39, H₂O (calc.) 1.63, sum 96.32 wt%, from which the structure-derived formula corresponds to Hg₁₋ₓAlₓ(PO₄)₂₋ₓ(OH)ₓ₊₁, where x = 0.26. The mineral occurs as a matted nest of randomly scattered fibres, elongate [001] and some >1 mm in length, with length:width >100:1. Colorless, to white in aggregates, transparent, vitreous luster, white to cream-colored streak, H not determinable, no cleavage, irregular fracture, nonfluorescent, Dₙaₘ = 6.40 g/cm³ for Z = 4. Optically biaxial positive, n = 1.90, 2Vₙₐₘ = ~60°, parallel extinction, length slow, Z = c. Single-crystal X-ray structure study indicated monoclinic symmetry, space group C2/c; a = 17.00(7) Å, b = 9.07(4) Å, c = 7.013(5) Å, β = 101.30(5)° as refined from an X-ray powder pattern (114 mm Debye–Scherrer, CuKα radiation) with strongest lines of the X-ray powder pattern (diffraction pattern, FeKα radiation) are 3.389(18), 3.249(5), 2.926(6), 2.784(6), 2.660(7). The mineral is a weathering product associated with quartz, goethite, dickite, and cinnabar; the Hg w.

The mineral, as is indicated by the name, is a non-orthogonal dimorph of (orthorhombic) barylite. Electron microprobe analysis gave BaO 47.66, SiO₂ 36.38, BeO (by AA) 14.90, sum 98.94 wt%, corresponding to Ba₁₋ₓBeₓSi₂₋ₓO₇₋ₓ. The mineral forms radial aggregates and platy to prismatic crystals that are elongate [001] and up to 1 × 4 × 20 mm, typically flattened on [100] or less commonly on [010]. Observed forms are [001], [010], [001], and [201], with less common [101], [010], and [010]. Colorless, transparent, vitreous luster, brittle, H = 6/2, perfect [100] and less perfect [001] and [101] cleavages, Dₙaₘ = 3.97(7), Dₙcₘ = 4.05 g/cm³ for Z = 2. Optically biaxial positive, α = 1.698(3), β = 1.700(3), γ = 1.705(5), 2Vₙₐₘ = 70(10), 2Vₙcₘ = 65°, orientation Z = b, X ∩ a = 6°, Y ∩ c = 5–6°. Single-crystal X-ray structure study (R = 0.052) indicated monoclinic symmetry, space group Pm, a = 11.618(3) Å, b = 4.904(1) Å, c = 4.655(1) Å, β = 89.94(2)°. Strongest lines of the X-ray powder pattern (diffraction pattern, FeKα radiation) are 3.389(45), 3.249(5), 2.926(6), 2.784(6), 2.660(7), and 2.335(48). The mineral occurs with natrolite, aegirine, microcline, catapleiite, fluorapatite, titanite, fluorite, aninite, astrophyllite, and others in alkaline pegmatite veins at Yukspor Mountain, southern part of the Khibiny alkaline massif, Kola Peninsula, Russia. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. J.L.J.

CLINOBARYLITE*


The mineral, as is indicated by the name, is a non-orthogonal dimorph of (orthorhombic) barylite. Electron microprobe analysis gave BaO 47.66, SiO₂ 36.38, BeO (by AA) 14.90, sum 98.94 wt%, corresponding to Ba₁₋ₓBeₓSi₂₋ₓO₇₋ₓ. The mineral forms radial aggregates and platy to prismatic crystals that are elongate [001] and up to 1 × 4 × 20 mm, typically flattened on [100] or less commonly on [010]. Observed forms are [001], [010], [001], and [201], with less common [101], [010], and [010]. Colorless, transparent, vitreous luster, brittle, H = 6/2, perfect [100] and less perfect [001] and [101] cleavages, Dₙaₘ = 3.97(7), Dₙcₘ = 4.05 g/cm³ for Z = 2. Optically biaxial positive, α = 1.698(3), β = 1.700(3), γ = 1.705(5), 2Vₙₐₘ = 70(10), 2Vₙcₘ = 65°, orientation Z = b, X ∩ a = 6°, Y ∩ c = 5–6°. Single-crystal X-ray structure study (R = 0.052) indicated monoclinic symmetry, space group Pm, a = 11.618(3) Å, b = 4.904(1) Å, c = 4.655(1) Å, β = 89.94(2)°. Strongest lines of the X-ray powder pattern (diffraction pattern, FeKα radiation) are 3.389(45), 3.249(5), 2.926(6), 2.784(6), 2.660(7), and 2.335(48). The mineral occurs with natrolite, aegirine, microcline, catapleiite, fluorapatite, titanite, fluorite, aninite, astrophyllite, and others in alkaline pegmatite veins at Yukspor Mountain, southern part of the Khibiny alkaline massif, Kola Peninsula, Russia. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. J.L.J.

EVESLOGITE*


The mineral occurs as fibrous grains, up to 0.05 mm across and 5 cm long, that form plicated aggregates. Light brown or yellow-brown color, vitreous to silky luster, white streak, brittle, splintery fracture; H = 5, perfect [001] and [010] cleavages, Dₙaₘ = 2.85, Dₙcₘ = 2.93 g/cm³ for the empirical formula and Z = 4, insoluble in HCl and HNO₃ at room temperature. Optically biaxial positive, α = 1.631(2), β = 1.641(2), γ = 1.647(2), 2Vₙₐₘ = 82°, a = X, c = Y, b ∩ Z = 5° in obtuse γ, pleochroism Y and Z = pale yellow, X = colorless. Wet chemical analysis gave Na₂O 4.59, K₂O 8.53, Rb₂O 0.20, CaO 18.60, SrO 2.75, BaO 2.84, MnO 1.00, FeO 0.88, Fe₂O₃ 0.23, Al₂O₃ 0.32, SiO₂ 41.96, TiO₂ 6.52, ZrO₂ 0.35, Nb₂O₅ 6.56, Ta₂O₅ 0.25, H₂O 2.85, F 2.72, Cl (electron microprobe) 0.42, O = F+Cl 1.24, sum 100.33 wt%, for which Si + Al = 48 corresponds to (Caₓ₋₉,Naₓ,Srₓ,Baₓ)(Tiₓ+1,Nbₓ,Feₓ,Mnₓ)₂₋ₓ(PO₄)ₓ₋₁(OF₄)ₓ₋₁, simplified as in the title. The presence of OH–H₂O is evident in the IR spec-
trum. Electronic diffraction patterns and indexing of the powder pattern (diffractometer, CuKα radiation) indicated monoclinic symmetry, possible space group P2/m, a = 14.069(3), b = 24.937(5), c = 44.31(2) Å, γ = 95.02(4)°; strongest lines are 12.33(51,020), 6.199(42,040), 3.127(65,426), 3.110(52,364), 2.990(59,23,12), and 2.940(45,24,12), and 2.835(100,428). The structure is astrophyllite-like.

The mineral is associated with nepheline, K-feldspar, biotite, fluorapatite, shcherbakovite, eudialyte, and astrophyllite in a veinlet that cuts nepheline syenite at Mt. Evesloghorr, Khibiny alkaline massif, Kola Peninsula, Russia. The new mineral name alludes to the locality. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. J.L.J.

**GLAGOLEVITE**


Electron microprobe analysis gave Na$_2$O 3.94, MgO 37.23, FeO 0.38, MnO 0.11, Al$_2$O$_3$ 13.36, SiO$_2$ 29.24, H$_2$O (TGA) 14.5, sum 98.76 wt%, corresponding to Na$_2$O$_{0.7}$Mg$_{5.5}$Fe$_{0.03}$Mn$_{0.01}$Al$_{0.04}$Si$_{2.9}$O$_{10.0}$H$_2$O for Mg + Fe + Mn + Al + Si = 10, ideally NaMg$_2$Si$_3$AlO$_{10}$OH$_2$H$_2$O. The mineral occurs as poikilitic grains up to 3 cm, wherein the inclu-sions are of vesuvianite. Colorless, transparent, vitreous to pearly luster, indistinct to stepped fracture, perfect [001] cleavage, uneven fracture, D$_{max}$ = 3.32(1), D$_{oak}$ = 3.31 g/cm$^3$ for Z = 1.

Optically biaxial positive, α = 1.684(2), β = 1.695(4), γ = 1.718(2), 2V$_{meas}$ = 73(2), 2V$_{calc}$ = 70°, orientation X = c, Z = a. Electron microprobe analysis gave Na$_2$O 3.94, MgO 37.23, FeO 0.38, MnO 0.11, Al$_2$O$_3$ 13.36, SiO$_2$ 29.24, H$_2$O (TGA) 14.5, sum 98.76 wt%, corresponding to Na$_2$O$_{0.7}$Mg$_{5.5}$Fe$_{0.03}$Mn$_{0.01}$Al$_{0.04}$Si$_{2.9}$O$_{10.0}$H$_2$O for Mg + Fe + Mn + Al + Si = 10, ideally NaMg$_2$Si$_3$AlO$_{10}$OH$_2$H$_2$O. The mineral occurs as poikilitic grains up to 3 cm, wherein the inclu-sions are of vesuvianite. Colorless, transparent, vitreous to pearly luster, indistinct to stepped fracture, perfect [001] cleavage, uneven fracture, D$_{max}$ = 3.32(1), D$_{oak}$ = 3.31 g/cm$^3$ for Z = 1. Optically biaxial positive, α = 1.684(2), β = 1.695(4), γ = 1.718(2), 2V$_{meas}$ = 73(2), 2V$_{calc}$ = 70°, orientation X = c, Z = a. The mineral name is for Russian mineralogist A.A. Glagolev. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. J.L.J.

**KOCHITE**


The mineral occurs as brownish, lath-shaped to acicular grains, elongate [010], in parallel to subparallel aggregates up to 0.3 x 1.0 mm. Electron microprobe analysis gave Na$_2$O 10.33, CaO 21.39, SrO 0.12, MgO 0.01, MnO 4.92, FeO 1.08, Al$_2$O$_3$ 0.05, VO$_2$ 0.03, Y$_2$O$_3$ 0.39, La$_2$O$_3$ 0.25, CeO$_2$ 0.57, SiO$_2$ 31.55, TiO$_2$ 8.44, ZrO$_2$ 12.12, HfO$_2$ 0.09, Nb$_2$O$_5$ 1.86, Ta$_2$O$_5$ 0.02, F 6.83, O = F 2.88, sum 97.71 wt%, corresponding to (Na$_{1.71}$Ca$_{0.2}$Mn$_{2.9}$Al$_{2.9}$Si$_{2.9}$O$_{10}$)(Fe$_{0.03}$Mn$_{0.01}$Al$_{0.04}$)O$_2$V$_{0.05}$H$_2$O$_{0.02}$O$_2$Si$_3$O$_{10}$(Si$_3$O$_8$)$_2$F$_4$.

Transparent, vitreous luster, brittle, H = 5, perfect [100] cleavage, uneven fracture, D$_{max}$ = 3.32(1), D$_{oak}$ = 3.31 g/cm$^3$ for Z = 1. Optically biaxial positive, α = 1.684(2), β = 1.695(4), γ = 1.718(2), 2V$_{max}$ = 73(2), 2V$_{calc}$ = 70°, orientation X = c, Z = a. The mineral name is for Russian mineralogist A.A. Glagolev. Type material is in the Fersman Mineralogical Museum, Moscow, Russia. J.L.J.

**SAILAUFITE**

M. Wildner, E. Tillmanns, M. Andrut, J. Lorenz (2003) Sailaufite, (Ca$_{1.5}$Ca$_{0.5}$Mn$_{2.5}$As$_{0.5}$O$_{32}$(Si$_3$O$_8$)$_2$H$_2$O, a new mineral from Hartkoppe hill, Ober-Sailof (Spessart Mountains, Germany), and its relationship to mitridatite-group minerals and pararobertsite. Eur. J. Mineral., 15, 555–564.

The mineral occurs as a late-stage hydrothermal product associated with hausmannite, arseniosiderite, kutnohorite, dolomite, quartz, and calcite in veins of Mn ore in a rhyolite at
Hartkoppe hill, north of Ober-Sailauf, northwestern Bavaria, Germany. Another occurrence is with manganolothhemeyerite, tilasite, and calcite in veinlets within massive braunite ore at the Starlara deposit in the Eastern Alps of Switzerland. The new mineral name refers to the type locality. Type material is in the Institut für Mineralogie und Kristallographie der Universität Wien, Vienna, Austria. J.L.J.

SHIROKSHINITE*

The mineral, ideally K(NaMg₂)Si₆O₁₆F₂, is the Na-dominant analog of tainiolite, K(LiMg₂)Si₆O₁₆F₂. Electron microprobe analysis gave K₂O 10.18, Na₂O 0.70, MgO 19.17, MnO 0.23, FeO 1.54, Al₂O₃ 0.24, TiO₂ 0.16, SiO₂ 57.64, F 9.19, O = F 3.87, sum 101.49 wt%, corresponding to (K₀.₉₀Na₀.₀₂Mg₀.₀₂Fe₀.₀₁Ti₀.₀₁₂Mn₀.₀₁Al₀.₀₂₄O₀.₉₉₂F₀.₀₁. The IR spectrum confirms the absence of OH. Crystals are hexagonal [001] prismatic, typically skeletal, up to 0.8 × 1 × 2.5 mm, and grouped in sheaflike clusters up to 2.5 mm. Colorless to pale gray, or with a greenish tint, transparent to translucent, white streak, vitreous to pearly luster, angular to subangular, or with a greenish tint, transparent to translucent, white streak, vitreous to pearly luster, typical {001}, nonfluorescent.

Mineralogical Museum, Moscow, Russia.

K, Ti ANALOG OF ILÌMAUSITE-(CE)
S.V. Krivovich, V.N. Yakovenchuk, T. Armbruster, Y.A. Pakhomovskiy, W. Depmeir (2003) Crystal structure of the K, Ti analogue of ilìmausite-(Ce), (Ba,K,Na,Ca)₁₋₁₂(REE,Fe, Th, Ti, Nb)₃(Si₆O₁₈)₂(OH)₁₂.4.5H₂O: revision of structure model and structural formula. Z. Kristallogr., 218, 392–396.

Single-crystal X-ray structure study (R₁ = 0.077) of the mineral, from Yuskpor Mountain, Khibiny massif, Kola Peninsula, Russia, gave rhombohedral symmetry, space group R₃₂, a = 10.708(2), c = 60.073(11) Å, and the newly derived formula given in the title.

Discussion. The revision refers to the crystal structure presented in Doklady Chemistry, 388, 9–13, 2003. The full description of the new mineral has not yet been published, but the data refer to mineral IMA No. 2002–043. J.L.J.

NEW DATA

ALACRANITE

Compositional and X-ray data, including single-crystal structure studies, indicate that alacranite corresponds to As₂S₄, monoclinic, space group P2₁c, whereas the high-temperature form corresponds to As₁₂S₄, has a smaller cell volume, and crystallizes with the space group C2/c. The As₁₂S₄ (P2₁c) mineral is concluded to be alacranite, sensu stricto, whereas the As₂S₄ mineral (Am. Mineral., 87, p. 357, 2002) is considered to be a new species. J.L.J.

ARSENIOPLEITE

Electron microprobe analysis and single-crystal X-ray structure study (R = 0.023) of a specimen of arseniopleite from the originally described material (Sjö mine, Örebro, Sweden) gave monoclinic symmetry, space group C2/a, a = 6.8113(6), b = 13.0358(11), c = 11.3245(10) Å, β = 100.25(3)°, formula (Ca₀.₈₇Na₁₀₂Al₂₀₀₁₃Mg₀.₃₃Fe₀.₇₂Mn₀.₁₂Ca₀.₃₂Ba₀.₀₂₃₂₃₉Mn₀.₀₀₂₄Mn₀.₀₁₁₃₂₀₂₂₅O₃₈, suggested to be close to the general formula of the crichtonite group. In reflected light, low reflectance similar to that of spheleterite, with a brownish hue. The mineral is common throughout the deposit, occurring as roughly subhedral tabular crystals <100 µm across in anorthite-rich metapelitic hornfels containing goldmanite, coulsonite, and other minerals rich in Ti, V, and Cr. J.L.J.
ASTROPHYLLITE GROUP


The compositions of 135 samples of astrophyllite-group minerals from 15 localities, and single-crystal X-ray structure refinements of 20 crystals from various localities, indicate a general formula \( A_{3}B_{2}C_{2}D_{2}E_{4}F_{2}G_{4}(OH)_{2+(X-1)} \), where \( A = K, Rb, Cs, H, H_{2}O, Na, \) or \( \square \); \( B = Na \) or \( Ca \); \( C = Mn, Fe^{2+}, Fe^{3+}, Na, Mg, \) or \( Zn; D = Ti, Nb, \) or \( Zr; T = Si \) or \( Al; X = F, OH, O \) or \( \square \). Mössbauer spectroscopy indicated that Fe is by far the dominant state for Fe. The group is divided into the astrophyllite subgroup (Fe > Mn) and the kuplakite subgroup (Mn > Fe) as shown in Table 1. The single-crystal X-ray refinements gave similar triclinic unit cells, space group \( P_{T} \), for astrophyllite, kuplakite, and niobokuplakite, but one specimen of kuplakite, from Lepke-Nelm, Lovozero massif, Russia, gave a monoclinic cell, space group \( C2/c \) (Am. Mineral., 87, p. 768, 2002). J.L.J.

### Table 1. Formulas for astrophyllite-group minerals

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<thead>
<tr>
<th>Astrophyllite subgroup</th>
<th>Formula</th>
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<tbody>
<tr>
<td>astrophyllite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>magnesium astrophyllite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>niobophyllite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>zircophyllite</td>
<td>( K_{2}(Na_{2}Ca_{2})<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>Fe-dominant analog of</td>
<td></td>
</tr>
<tr>
<td>zircophyllite*</td>
<td>( K_{2}(Na_{2}Ca_{2})<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>hydrozircophyllite</td>
<td>( K_{2}(Na_{2}Ca_{2})<em>{2}Ti</em>{2}Si_{2}O_{8}(OH)_{4}F )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Kuplakite subgroup</th>
<th>Formula</th>
</tr>
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<tbody>
<tr>
<td>kuplakite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Si</em>{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>niobokuplakite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Si</em>{2}O_{8}(OH)_{4}F )</td>
</tr>
<tr>
<td>cesium kuplakite</td>
<td>( K_{2}Na_{2}(Fe^{2+},Mn)<em>{2}Si</em>{2}O_{8}(OH)_{4}F )</td>
</tr>
</tbody>
</table>

* Unnamed, but one of the compositions plots well into the field for this mineral.

BERGENITE


Single-crystal X-ray study structure \( R_{I} = 0.05 \) of bergenite from the type locality in Germany gave monoclinic symmetry, space group \( P2_{1}/c, a = 10.092(1), b = 17.245(2), c = 17.355(2) Å, \( \beta = 113.678(2) \)°, \( D_{calc} = 4.82 \text{ g/cm}^{3} \), for \( Z = 2 \) and the formula \( \text{Ca}_{2} \text{Ba}_{2}(\text{UO}_{3})_{2} \text{(PO}_{4})_{2} \text{(H}_{2} \text{O})_{16} \). The unit cell and formula are new. J.L.J.

EUDIALYTE GROUP


Minerals in the eudialyte group are trigonal, \( a = 14, c = 30 \) Å (rarely 60 Å), and have the space groups \( R3\bar{m}, R3m, \) and \( R3 \). The general formula is \( [N(1)N_{A}(2)N_{B}(3)N_{C}(4)N]_{2}M(1a)M(1b)_{12}M(2)M(3)(M4Z_{2}Si_{2}O_{8})_{2}\text{Si}_{2}O_{8}(OH)_{4}X_{8} \), wherein \( X = \text{Cl}, \text{F}, \text{OH}, \) or \( \text{CO}_{2} \). The principle that any new element prevalent in any site gives rise to an independent species has been adhered to, except for \( X \). Thus, as pointed out by the authors, who constituted the Eudialyte Nomenclature Subcommittee established by the CNMMN, thousands of minerals species in the eudialyte group are theoretically possible. The CNMMN has approved the conventional unique-name system for the group, and nine new mineral names, approved by the CNMMN but for which descriptions have not yet been published, are given in the paper. J.L.J.

SIMMONSITE


Rietveld refinement of X-ray data \( R_{Bragg} = 0.0315 \) for synthetic simmonsite gave a monoclinic cell with \( a = 5.2842(1), b = 5.3698(1), c = 7.5063(2) \), \( \beta = 89.98(1)^{\circ} \). Comparison of data for the natural and synthetic analogs indicates that they have the space group \( P2_{1}/n \). J.L.J.

TORBERNITE, ZEUENERITE, METATORBERNITE, METAZEUNERITE


Single-crystal X-ray study structure of synthetic torbernite \( R_{I} = 0.037 \), \( \text{Cu}[(\text{UO}_{2})_{2}(\text{PO}_{4})_{2}]_{12}(\text{H}_{2} \text{O})_{12} \), and for zeunerite \( R_{I} = 0.036 \), \( \text{Cu}[(\text{UO}_{2})_{2}(\text{PO}_{4})_{2}]_{12}(\text{H}_{2} \text{O})_{12} \), indicated that both are tetragonal, space group \( P4_{1}mnc \), with respective cell dimensions \( a = 7.0267(4), 7.71797(3), c = 20.807(2), 20.857(1) \) Å. Metatorbernite \( R_{I} = 0.034 \), \( \text{Cu}[(\text{UO}_{2})_{2}(\text{PO}_{4})_{2}]_{12}(\text{H}_{2} \text{O})_{12} \), and metazeunerite \( R_{I} = 0.031 \), \( \text{Cu}[(\text{UO}_{2})_{2}(\text{AsO}_{4})_{2}]_{12}(\text{H}_{2} \text{O})_{12} \), are tetragonal, space group \( P4_{1}n \), \( a = 6.9756(5), 7.1094(1), c = 17.349(2), 17.416(1) \) Å. The data resolve previous uncertainties about unit cells and the space-group assignments. J.L.J.

URANOSPHAERITE


Single-crystal X-ray study structure \( R_{I} = 0.0286 \) of uranosphaerite from the Clara mine, Black Forest, Germany, gave monoclinic symmetry, space group \( P2_{1}/n, a = 7.559(2), b = 7.811(2), c = 7.693(2) \), \( \beta = 92.88(3)^{\circ} \), \( D_{calc} = 7.731 \) for \( Z = 4 \). Similar results were obtained from a synthesized crystal; the derived formula is \( \text{Bi}[(\text{UO}_{2})_{2} \text{O}_{4} \text{OH}] \), which differs from that commonly reported. J.L.J.
YUKSPORITE


Electron diffraction patterns of yuksporite showed the mineral to be triclinic, \(P\bar{1}\), rather than orthorhombic (Am. Miner., 71, 1547–1548, 1986); \(a = 16.50(5)\), \(b = 25.21(4)\), \(c = 21.11(3)\) Å, \(\alpha = 100.4(3)\), \(\beta = 110.0(4)\), \(\gamma = 90.4(1)°\), \(Z = 2\). The strongest lines of the powder pattern (Murum massif) are 6.219(5), 3.104(90,080,48), 2.999(90,373,37), 2.915(70,371,33), and 2.796(100,375). The published chemical data are reinterpreted as corresponding to \((\text{K,Na})\text{Ca,Na,Sr,Ba}\text{Ti,Fe}\text{OH}\text{SiO}_4\text{F,OH,Cl}_16\). J.L.J.

ZIPPEITE GROUP


Single-crystal X-ray structure study (\(R_1 = 0.0330\)) of synthetic zippeite gave monoclinic symmetry, space group \(C2\), \(a = 8.7524(4)\), \(b = 13.9197(7)\), \(c = 17.6972(8)\) Å, \(\beta = 104.178(1)°\), \(Z = 4\); the results, and a re-interpretation of previous structure data (Am. Mineral., 81, p. 770, 1996), yield a formula revised to \(\text{K}_3\text{(H}_2\text{O})_3\text{(UO}_2\text{)}_4\text{(SO}_4\text{)}_2\text{O}_3\text{(OH)}\). Synthetic sodium-zippeite \((R_1 = 0.0688)\) is monoclinic, \(P2_1/n\), \(a = 17.6425(11)\), \(b = 14.6272(9)\), \(c = 17.6922(11)\) Å, \(\beta = 104.461(1)°\), \(Z = 4\), and corresponds to \(\text{Na}_5\text{(H}_2\text{O})_{12}\text{(UO}_2\text{)}_8\text{(SO}_4\text{)}_4\text{O}_5\text{OH}_3\). Synthetic magnesium-zippeite \((R_1 = 0.0239)\), zinc-zippeite \((R_1 = 0.0457)\) and cobalt-zippeite \((R_1 = 0.0555)\) are monoclinic, space group \(C2/m\), approximate \(a = 8.65\), \(b = 14.2\), \(c = 17.7\) Å, \(\beta = 104.1°\), \(Z = 8\), and correspond to \(\text{M(H}_2\text{O})_3\text{(UO}_2\text{)}_2\text{(SO}_4\text{)}_2\text{O}_2\) in which M is Mg, Co, and Zn, respectively. J.L.J.

ERRATA

In the abstracts for calcioburbankite and lovozerite (Am. Mineral., 88, p. 934), the page numbers given as 1009–1013 for calcioburbankite and 1019–1029 for lovozerite incorrectly refer to the original Russian publication (Kristallografiya) and should be changed to read 929–937 and 937–941, respectively, for the journal cited in the abstracts. We thank J. Ferraiolo for pointing out the error. J.L.J.