New Mineral Names*†

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This New Mineral Names has entries for 9 new mineral species, including dmisokolovite, geschieberite, imayoshiite, palladosilicate, plăšilite, raisiate, schuchvorkytite, svornostite, and vanackerite.

GESCHIEBERITE* AND SVORNOSTITE*

J. Plášil, J. Hloušek, A. V. Kasatkin, M. Novák, J. Čejka and L. Lapčák (2015) Geschieberite, K$_{1.72}$Mg$_{0.29}$Na$_{0.04}$Ca$_{0.01}$[UO$_2$(SO$_4$)$_2$]$_2$ (by structure refinement), total 100.24. This gives the empirical formula K$_2$Mg[(UO$_2$)(SO$_4$)$_2$]$_2$·8H$_2$O, a new uranyl sulfate mineral from Jáchymov, Czech Republic. Journal of Geosciences, 60, 113–121.

Two new uranyl sulfates, geschieberite (IMA 2014-006), ideally K$_2$(UO$_2$)(SO$_4$)$_2$(H$_2$O)$_2$ and svornostite (IMA 2014-078), ideally K$_2$Mg[(UO$_2$)(SO$_4$)$_2$]·6H$_2$O were recently discovered in the Geschieber vein at the Svonrost mine, Jáchymov (Joachimsthal), Western Bohemia, Czech Republic, and named for their type locality. The Jáchymov ore district is a classic example of the Variscan hydrothermal vein type of deposit, so-called five-element formation, Ag–Bi–Co–Ni–U. Both new minerals are the superfine products of the post mining alteration of the uraninite and sulfides of the primary ore. They occur in the close association with each another and with adolfpateraite, gypsum and mathesiusite. Both new minerals exhibit strong yellowish green fluorescence under both short- and long-wave UV radiation. Both are brittle, have an uneven fracture, and not be measured due to paucity of pure material; the color in transmitted light is not given. The average of 6 electron probe EDS analysis [wt% (range)]: Na$_2$O 0.23 (0.13–0.75), K$_2$O 0.98 (0.40–1.52), MgO 0.05 (0.02–0.11), CaO 0.01 (0.00–0.02), UO$_3$ 49.51 (47.23–51.64), SO$_3$ 27.74 (26.82–28.78), H$_2$O 36.63 (34.62–39.78). The strongest powder X-ray diffraction lines are: d [Å (lattice modes)] = 11.2163(3), b = 8.275(2), c = 3.1122(3) Å, V = 1187.5 Å$^3$. Single-crystal X-ray diffraction data collected on a crystal of size 0.19 × 0.11 × 0.09 mm refined to R$_I$ = 0.028 for 1882 unique reflections with θ ≥ 3(0) shows geschieberite is orthorhombic, Pnma, with a = 13.7778(3), b = 7.2709(4), c = 11.5488(2) Å, V = 1156.92 Å$^3$, Z = 4.

Svornostite forms bright yellow aggregates of light yellow elongated by [010] and flattened on {100} crystals up to 0.2 mm. The crystals are transparent to translucent with a vitreous luster and very pale yellow streak. The cleavage is perfect on {100} and {010}. The density was not measured; D$_{mea}$ = 3.259 g/cm$^3$. The mineral is optically biaxial (+), α = 1.548(2), β = 1.556(3), γ = 1.585(2) (590 nm). The 2V$^e$ was not measured; 2V$^e$ = 56°. Z = e. No dispersion was observed. The mineral is non-pleochroic; the color in transmitted light is not given. The average of 6 electron probe EDS analysis [wt% (range)]: K$_2$O 7.93 (7.34–8.31), MgO 3.11 (2.75–3.93), CuO 0.79 (0.50–2.40), SO$_3$ 28.13 (25.44–30.70), UO$_2$ 48.94 (49.99–51.72), H$_2$O (by stoichiometry according structure model) 12.53, total 101.43. That yields the empirical formula K$_{1.59}$Mg$_{0.79}$Na$_{0.05}$Cu$_{0.11}$[(U$_{0.99}$O$_{2}$)(S$_{1.01}$O$_{4}$)$_4$(H$_2$O)$_2$]$_2$ based on 28 O apfu. The strongest powder X-ray diffraction lines are |d [Å (with φ)]|: 8.279 (50; 010), 6.398 (100; 200), 5.060 (55; 210), 4.645 (40; 012), 4.610 (38; 211), 3.881 (34; 021), 3.381 (34; 221), 3.318 (34; 401), 3.009 (44; 221), 2.981 (44; 402), 2.509 (44; 413). The unit-cell parameters refined from powder-diffraction data are: a = 12.873(3), b = 8.275(2), c = 11.222(3) Å, V = 1187.5 Å$^3$. Single-crystal X-ray diffraction data collected on a crystal of size 0.24 × 0.07 × 0.05 mm refined to R$_I$ = 0.023 for 2745 reflections with L$_{mo} > 3σ[I]$. Svornostite is orthorhombic, space group Pnma, a = 12.7850(3), b = 8.6283(4), c = 11.2163(3) Å, V = 1185.68 Å$^3$, Z = 2.

The Raman spectra of both new minerals are similar and shows bands [geschieberite / svornostite (cm$^{-1}$): w = weak, s = strong] at: 3594 and 3506 / 3622, 3545, and 4396 (v O-I- stretching vibrations of the hydrogen-bonded H$_2$O molecules); 1216, 1120, 1108 / 1200, 1200, 1155, and 1110 [v (SO$_4$)$^{2-}$ antisymmetric stretching; 992 and 984 / 1028 and 999 (v$_1$, (SO$_4$)$^{2-}$ symmetric stretching); 832s / 854vs [v$_6$ (UO$_2$)$^{2+}$ symmetric stretching]; 652, 606, and 584 / 643 and 610 [v$_4$ (SO$_4$)$^{2-}$ bending]; 470, 456, and 426 / 458 and 438 [v$_5$ (δ) (SO$_4$)$^{2-}$ bending]; 386 / 322 (libration mode of H$_2$O or O-U-O ligand vibration); ~350v (K-O stretching); 270s, 250s, and 230s / 268w with a 207 shoulder [v$_5$ (UO$_2$)$^{2+}$ bending]; 180, 154, 132, 100, 80 / 186, 132, and 75 (lattice modes). The structure of geschieberite consists of [(UO$_2$)(SO$_4$)$_2$(H$_2$O)$_2$] sheets based on the protasite anion topology and stacked perpendicular to a. Interlayer linkage is provided by K and one H$_2$O, while the other H$_2$O molecule is localized at the free vertex of the uranyl pentagonal bipyramid in the structural unit. The structure is identical to that of the synthetic compound K$_2$[(UO$_2$)(SO$_4$)$_2$(H$_2$O)](H$_2$O).

* All minerals marked with an asterisk have been approved by the IMA-CNMNC.
† For a complete listing of all IMA-validated unnamed minerals and their codes, see http://pubsites.uws.edu.au/ima-cnmnc/.
In svornostite the structural unit [(UO$_2$)$_2$(SO$_4$)$_2$(H$_2$O)$_2$]$^2$ is represented by infinite chains parallel to c. In the chains UO$_2$, pentagonal bipyramidal shares four of the equatorial vertices with SO$_4$, tetrahedra with each tetrahedron is linked to two uranyl bipyramids. The free, non-linking equatorial vertex of the uranyl bipyramid is occupied by an H$_2$O molecule. The adjacent chains are linked through the Mg-octahedra sharing the apical O atoms of the SO$_4$ groups of the chains and additionally by the K-O bonds and also H-bonds involving H$_2$O molecules. The structural formula of svornostite is K$_2$Mg[(UO$_2$)$_2$(SO$_4$)$_2$(H$_2$O)$_2$]+(H$_2$O)$_2$. The uranyl sulfate chains are also the same as the structures of boekooite and several of synthetic uranyl sulfates. The type specimens of geschieberite and svornostite are deposited in the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow, Russia. O.C.G. and D.B.

**IMAYOSHIITE**


Imayoshiite (IMA2013-069), ideally Ca$_3$Al(CO$_3$)$[B(OH)$_4$](OH)$_6$·12H$_2$O, is a new mineral found at Suisho-dani, Ise City, Mie Prefecture, Japan. The mineral occurs in cavities of the altered gabbro xenolith in the exposed serpentinitized dunite, where rings of the xenoliths suffered hydrothermal alteration. Plagioclase, a main constituent of the xenoliths, has been altered to hydrous calcium silicate minerals such as olivine, hydrogarnet, xonotlite, tobermorite, bultfonteinite, apophyllite, and prehnite, all of which are associated with imayoshiite. Imayoshiite occurs as white aggregates of fibrous-to-acicular crystals up to 2 mm across with silky lustre. Crystals are colorless, transparent with a white streak and a vitreous luster. The mineral is hard 2–3. Density and hardness could not be measured due to small grain size. D$_{max}$ varies between 9.562 to 9.753 g/cm$^3$ for 3 analyses. The mineral is weakly bireflectant and displays no discernible pleochroism. It is weakly amorphous, has weak extinction and rotation tints in shades of blue and olive green. Reflectance values were measured between 400 and 700 nm in 20 nm intervals. The values for COM wavelength in air/oil [$R_{ext}$, $R_{int}$ $%$ (λ in nm)] are: 49.6/36.3, 53.8/36.4 (470); 51.2/27.6, 53.8/39.5 (546); 51.6/37.8, 53.7/39.5 (589); 51.7/37.9, 53.3/39.3 (650). The average of 8/12 electron probe EDS analyses on 2 crystals of palladosilicide is [wt% (%): Si 7.95/10.13 (6.83–8.58/8.49–10.76), Te 0.32/0.16 (0.00–1.16/0.11), Sb 0.36/0.11 (0.26–0.55/0.00–0.55), As 3.95/2.18 (3.15–6.76/0.82–5.37), Fe 0.64/0.35 (0.57–0.69/0.23–0.42), Mg 1.72/1.45 (1.17–1.96/1.57–1.63), Sn 1.79/1.08 (0.33–1.10/0.54–1.48), Cu 2.02/1.62 (1.96–2.67/1.71–2.45), Rh 2.39/1.72 (2.06–2.61/1.40–2.85), Ag 1.07/0.33 (0.17–2.64/0.18–0.64), Ni 4.59/5.16 (4.26–4.89/4.85–5.51). 

**PALLADOSILICIDE**


Palladosilicide (IMA 2014-080), ideally Pd$_3$Si, is a new mineral found at the platinum-group element (PGE)-chromite horizon of the Kapatagul Intrusion near the eastern shore of Lake Tanganyika, western Tanzania, as well as in the UG-2 chromitite, Bushveld Complex, RSA. Associated minerals include chromite, pentlandite, pyrrhotite/troilite, chalcopyrite, magnetite, along with gudmundite, arsenopyrite, zircon, galena, and anglesite. Thirteen grains of palladosilicide were found ranging in size from 0.37–3.1 mm, anhedral to subhedral habit, either free or attached to chromite. The new mineral is bright creamy with metallic luster, shows no cleavage, parting or fracture, and shows no twinning. Density and hardness could not be measured due to small grain size. D$_{max}$ varies between 9.562 to 9.753 g/cm$^3$ for 3 analyses.

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In palladosilicide the planar sheet of uranyl sulfates is [UO$_2$(OH)$_2$]$^2$ linked to two uranyl sulfates resulting in a layered structure with formula $\text{Pd}_3\text{Si}([\text{UO}_2\text{SO}_4]_{2-}([\text{OH}]_{5.96}\text{O}_{0.04}))$ based on 3 Ca apfu. The strongest lines in the powder X-ray diffraction (XRD) patterns of palladosilicide are $d_{200} \text{Si}=11.71 \text{H}_2\text{O}$ based on 3 calc apfu. The strongest lines in the calculated X-ray powder-diffraction pattern [d (Å) (2$\theta$; hkl) are: 2.943 (100; 100), 2.252 (69; 213,125), 4.636 (40; 102), 3.821 (33; 112), 2.729 (31; 302), 2.174 (30; 223), 1.768 (28,006), 2.120 (23; 313,133), 5.515 (18; 110). The unit-cell parameters refined from powder-diffraction data are $a = 11.0264(11)$ Å, $c = 10.6052(16)$ Å, and $V = 1116.6$ Å$^3$. Single-crystal X-ray diffraction data collected on a crystal of size 0.09 × 0.07 × 0.06 mm refined to $R = 0.0235$ for reflections with $2 \theta \geq 20$°(λ) shows imayoshiite is hexagonal, $P6_3$, $a = 11.0459$, $c = 10.6150$, $V = 1121.65$ Å$^3$, $Z = 2$. The structure of imayoshiite is based on Ca$_3$[Al(OH)$_2$(H$_2$O)$_3$]. The structure of palladosilicide is represented by the structural unit of $\text{Pd}_3\text{Si}([\text{UO}_2\text{SO}_4]_{2-}([\text{OH}]_{5.96}\text{O}_{0.04}))$ is a layered sheet structure with formula $\left(\text{Pd}_2\text{Si}_2\right)$

**PLÁŠILITE**


Plášilite (IMA 2014-021), ideally Na(UO$_2$)(SO$_4$)(OH)$_2$·2H$_2$O, is a new uranyl sulfate mineral from the Blue Lizard mine, Red Canyon, White Canyon District, San Juan County, Utah, USA. (37°33′26″N 110°17′44″W). The new mineral has a low-temperature supergene origin related to the post-mining oxidation of...
primary ores containing uraninite, pyrite, chalcopyrite, bornite, and covellite disseminated in lenses of organic matter. It occurs in and on sandstone matrix in close association with atacamite, blödite, brochantite, chalcantite, dickite, gerhardtite, gypsum, hexahydrite, johannite, manganobłoödite, natozirpeite, and tamarugite. Other secondary minerals in the general assemblage include belakovskite, bluelazidrite, boyleite, coaltoblöödite, copiapite, coquimbite, cyanoctrichte, d-aniste (Mn), deliensite, ferrinitite, harrite, kröhnite, liszhitchenite, mesisserite, metavoltite, pickeringite, pseudojohannite, rhomboclase, römerite, and sideronatrite. Plášilite forms greenish yellow, long, thin bladed crystals exhibiting the forms {100}, {010}, and {011}, elongated on {001}, flattened on {100} and commonly twinned on {100}. It is transparent with vitreous luster and a white streak. The fluorescence is bluish white under both long- and short-wave UV. The Mohs hardness estimated as ~2–3. The mineral is brittle with an even fracture and two perfect cleavages on {010} and {001}. Plášilite is easy soluble in water at room temperature. The density was not measured due to solubility the mineral in Clerichi solution; D_{calc} = 3.726 g/cm³. The mineral is optically biaxial (+), α = 1.556, β = 1.581, γ = 1.608 (white light), 2V_{e} = 88(1)°, 2V_{e} = 89°. X = b, Y = c = 4° in obtuse b. Dispersion of optical axes is moderate, r > v. It is pleochroic with X = nearly colorless < Y = very pale yellow < Z = pale yellow. The Raman spectrum bands are (cm⁻¹): 3600 (OH stretching vibration of the OH ions), 3530 and 3385 (OH stretching vibrations of water molecules), 1180, 1069 and 1035 (antisymmetric stretching of SO_4\(^2–\)), 997 (symmetric stretching of SO_4\(^2–\)) with a shoulder 986.5 (6U-OH bending vibration or the SO_4\(^2–\) symmetric stretching), 905 weak (UO_2\(^2–\) antisymmetric stretching), 838 strong (UO_2\(^2–\) antisymmetric stretching) with a shoulder 824 (6U–OH bending), 645, 603, 480, 445 (SO_3\(^2–\) bending), 349 (probably UO_2\(^{2+}\) bending ), 243 (UO_2\(^{2+}\) bending ), 210, 186, 170, 137, 88, and 70 (lattice modes). Raman spectroscopy confirmed the absence of CO₂. The average of 9 electron probe EDS analyses is [wt% (range)]: Na₂O 6.61 (5.42–7.63), UO₃ 65.15 (64.47–66.30), SO₃ 7.64 (6.3–8.9). The new mineral species. Of the six cotype specimens, five are deposited in the Fersman Mineralogical Museum of the Russian Academy of Sciences, Moscow, Russia.

**RAISAITEN**


Raisaite (IMA 2014-046), ideally CuMg[Te³⁺O₆(OH)₂]·6H₂O was discovered at the Sentyabr’skoe deposit, Ilrney ore district, Western Chukotka, North-Eastern Russia. The new mineral (Cyrillic: Пайзайраит) was named after Raisa Aleksandrovna Vinogradova (b. 1935), a specialist in ore mineralogy. Raisaite is a secondary supergene mineral and occurs in minor amounts in the oxidation zone in quartz veins with calcite, dolomite, ankerite, muscovite, nacrite, chamosite, and ore minerals such as pyrite, chalcopyrite, galena, sphalerite, acanthite, gold, hetzite, petzite, altaite, and coloradoite. Raisaite occurs in cracks and small cavities in association with gypsum, malachite, azurite, cerussite, anglesite, brochantite, linarite, posnjakite, secondary gold and acanthite, chlorargyrite, brucite, goethite, coronadite, paratellurite, xocometacalite, and incompletely studied Cu, Mg, Mn, Zn, Fe, and Pb tellurite/tellurides. Raisaite forms prismatic, usually well-shaped crystals, which form radial groups, and crystal crusts. Individual crystals are up to 0.15 × 0.03 mm, very rarely up to 0.6 × 0.1 mm. Dense, roundish or spherical clusters up to 0.2 mm in diameter are also observed. Raisaite grows on dolomite, quartz, muscovite, chalcopyrite, hetzite, and petzite. In some cases, gypsum covers raisaite aggregates. The new mineral is transparent, light blue to bright sky blue, with a white streak and vitreous luster. Raisaite is brittle with a Mohs hardness ~2. It has an imperfect cleavage in {001}, and uneven fracture. D_{max} = 2.821(1), D_{calc} = 2.828 g/cm³. Raisaite is optically biaxial (+), α = 1.626(3), β = 1.642(5), γ = 1.665(3) (589 nm); 2V_{e} = 80(10)°; 2V_{e} = 81°. Dispersion of optical axes is weak, r < v. Pleochroism is weak: X (bluish-grayish) > Y (pale bluish-grayish) > Z (colorless). The extinction angle with Z is 2(1°). IR spectrum shows the absorption bands in the range (cm⁻¹) of 3000–3600 [O-H stretching vibrations of H₂O and (OH) groups], 2900–2500, 1630, 1370, 1020, 960, and 820 (C-H stretching vibrations). The new mineral contains Cu, Mg, Te, O, H, and OH groups. The crystal structure of raisaite was solved by direct methods and refined to R_{1} = 0.019 for 1603 F_{obs} > 4σ(F_{o}). The anisotropic thermal parameters are [A²]; A = 1.124(164), B = 0.971(11), C = 0.862(164), V = 878.6 Å³. Raisingite is monoclinic, with the space group P2₁/c. Unit-cell parameters obtained using single-crystal X-ray data are: a = 8.7126(2), b = 13.8368(4), c = 7.0465(2), β = 112.18(7), V = 787.1 Å³. Plášilite is monoclinic, with the space group P2₁/c. Unit-cell parameters obtained using single-crystal X-ray data are: a = 8.7126(2), b = 13.8368(4), c = 7.0465(2), β = 112.18(7), V = 786.8 Å³. The crystal structure of plášilite was solved by direct methods and refined to R_{1} = 0.019 for 1603 F_{obs} > 4σ(F_{o}).

**SHCHUROVSKYITE**

Russia. IV. Shchurovskyite, K₃CaCu₆O₄(AsO₄)₄, and dmisokolovite, K₃Cu₆AlO₄(AsO₄)₄, Mineralogical Magazine, 79(7), 1737–1753.

Shchurovskyite (IMA 2013-078), ideally K₃CaCu₆O₄(AsO₄)₄, and dmisokolovite (IMA 2013-079), ideally K₃Cu₆AlO₄(AsO₄)₄, are two new minerals discovered in the Arsenatnaya fumarole at the Second scoria cone of the Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka Peninsula, Russia. Shchurovskyite (Cyliric: шчуроускит) was after Grigory Efimovich Shchurovsky (1803–1884), a prominent Russian geologist, mineralogist, and specialist in mineral deposits at Moscow State University. Dmisokolovite (дмисоколовит) was named after Dmitry Ivanovich Sokolov (1788–1852), a famous Russian mineralogist and geologist and Professor of Mineralogy and Geology at St. Petersburg State University and Academician of the Russian Academy of Sciences. Both new minerals occur in association with each other as well as with other arsenates such as johillerite, bradaczekite, tilasite, svabite, urusovite, ericlaxmanite, kozyrevskite, popovite, alarsite, hatertite, yurmarinite, pharmazincite, melanarsite, katiarsite, and as with other arsenates such as johillerite, bradaczekite, tilasite, svabite, urusovite, ericlaxmanite, kozyrevskite, popovite, alarsite, hatertite, yurmarinite, pharmazincite, melanarsite, katiarsite, and tenorite, hematite, fluorophlogopite, aphthitalite, langbeinite, calcioarsenite, urusovite, ericlaxmanite, kozyrevskite, popovite, alarsite, hatertite, yurmarinite, pharmazincite, melanarsite, katiarsite, and with tenorite, hematite, fluorophlogopite, aphthitalite, langbeinite, calcio--langbeinite, krasheninnikovite, steiklite, anhydrite, As-bearing orthoclase, Cu-rich garnite, corundum, wulfite, arcanite, palmierite, dolerophanite, alumoklyuchevskite, vanthoffite, sylvite, and OH-free fluoroborate.

The aforementioned minerals form incrustations up to 0.5 cm thick on the surface of basalt scoria. Shchurovskyite forms coarse tabular to prismatoid crystals usually <0.03 mm, rarely up to 0.15 mm, and anhedral crystals. Dmisokolovite forms tabular, prismatoid or dyipiramidal crystals up to 0.2 mm, and equant to flattened grains. The new minerals are both transparent with vitreous luster. Shchurovskyite is olive-green to dark olive-green, typically with a gray hue, or olive drab, and has a pale greenish streak. Dmisokolovite is bright emerald-green to light green, occasionally with a bluish hue, and has a light green streak. Both minerals are brittle, with Mohs hardness of 3. Shchurovskyite has no cleavage or parting. Dmisokolovite shows one direction of imperfect cleavage. The mineral has an uneven fracture. Density was not measured because of the paucity of the material. D₉calc = 4.28 g/cm³ for shchurovskyite and D₉calc = 4.26 g/cm³ for dmisokolovite. Shchurovskyite is optically biaxial (+), α = 1.795(5), β = 1.800(5), and γ = 1.810(6) (589 nm); 2Vmeas = 70(15); 2V₉ = 71°. Dispersion of optical axes was not observed. Pleochroism is weak: Z ≥ Y (grass green) > X (yellowish green). Dmisokolovite is optically biaxial (-), α = 1.758(7), β = 1.782(7), and γ = 1.805(8) (589 nm); 2Vmeas = 85(5); 2V₉calc = 88°. Dispersion of optical axes is strong, r > v. The mineral is pale green in transmitted light, non-pleochroic. In Raman spectra of both minerals, bands at 860–750 cm⁻¹ are 

A new member of the apatite supergroup, vanackerite (IMA 2011-114), ideally Pb₄Cd(AsO₄)₃Cl, was discovered in the second oxidized zone of the famous Tsumeb mine, a dolostone-hosted, polymetallic, hydrothermal ore deposit. It is a supergene mineral formed by alteration of polymetallic ore. The specimen with a new mineral was collected in 1980, but for a long time thought to be a mimetite. Vanackerite is Cd-substituted analog of mimetite. In the holotype specimen vanackerite crystals standing on bluish-green thomazekite and are associated with anglesite and gypsum. Light yellow, thin, translucent adamantine pseudohexagonal tabular (001) crystals of vanackerite up to 5 mm form groups and rosettes. The streak is white. Minor crystal forms are {101}, {111}, and {101}. Twinning was not observed. Some of the large vanackerite crystals reveal a fine-grained domain structure under crossed polar. The mineral shows an orange fluorescence in UV light which is stronger at 366 nm. The indentation hardness VHN₁₅₀ = 270 kg/mm² corresponds to ~4 of Mohs scale; D₉calc = 7.28 g/cm³. No data on optical properties were obtained; nmeas = 2.04. Polarized Raman spectra are dominated by the bands in the area 850–750 cm⁻¹ with a most strong peak at ~830 cm⁻¹ (AsO₄ stretching vibrations) and in the area 500–300 cm⁻¹ (AsO₄ bending). The exact wavenumbers are not provided. IR and Raman spectroscopy do not indicate any relevant water content. The average of 45 point electron probe WDS analyses is [wt%, (range)]: PbO 64.44 (63.02–67.36), CdO 8.82 (7.72–9.48), As₂O₅ 23.59 (23.12–23.95), CI 1.51 (1.13–1.97), O=Cl, 0.34, total 98.02 wt%. The empirical formula based on 8 cations pfu is Pb₄CdO₆As₂O₅Cl₃O₂. The strongest X-ray powder reflections are [d Å (hkl)] = 4.10 (10; 200), 3.290 (34; 320), 2.902 (100; 211,112,300), 2.067 (16; 222), 1.944 (11; 313). The single-crystal X-ray diffraction data shows vanackerite is trigonal, space group P3 with a = 10.0297(3) Å, c = 7.2965(2) Å, V = 635.43 Å³, Z = 2. The crystal structure refined to R = 0.0326 for 2249 observed I>3σ(I) reflections and is obtained from the hexagonal mimetite structure by site splitting of one of the Pb positions, accompanied by rotation of the arsenate tetrahedra. The mineral is named in honor of Georges Vanacker (1923–1992) of Bruegge, Belgium, who built a magnificent systematic collection of minerals including many specimens of the Tsumeb deposit in one of which vanackerite was identified. He donated this collection to the Natural Sciences Institute (Institut Royal des Sciences Naturelles de Belgique) of Bruxelles (Belgium) in 1991. The type specimen has been deposited in the Mineralogical Museum of the University of Hamburg, Germany. D.B.