

New Mineral Names

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ABSTRACT

This edition of New Mineral Names provides selected information for the newly approved minerals, nomenclature, and classification changes from the period February to July 2026, as well as brief summaries of some new mineral species published from February through August 2026. All minerals presented have been approved by the International Mineralogical Association Commission on New Minerals, Nomenclature and Classification (IMA-CNMNC).

RECENTLY APPROVED

A total of 27 new minerals were announced by the IMA-CNMNC in newsletters 90–92; see Table 1 for the list and cursory details of each (Bosi et al. 2026a, 2026b, 2026c). Nineteen new root names were introduced in this period. This section provides an overview of a few of the newly approved species.

Alexshubnikovite, $\text{Ca}_2\text{Cu}_9(\text{AsO}_4)_4(\text{OH})_9\text{Cl}(\text{H}_2\text{O})_8 \cdot 2\text{H}_2\text{O}$

Alexshubnikovite is a new mineral closely related to tangdanite and tyrolite and was discovered at the Khovu-Aksy deposit in Tuva, Russia. The cell parameters given in its announcement indicate that type material corresponds to the 1M polytype. Alexshubnikovite was named in concert with the discreditation of shubnikovite as a mixture of lavendulan and richelsdorffite.

Changesite-(Ce), Magnesiochangesite-(Ce), and Magnesiochangesite-(Y)

Three new minerals of the cerite supergroup were recently approved: changesite-(Ce), $(\text{Ca}_8\text{Ce})\square\text{Fe}^{2+}(\text{PO}_4)_7$, magnesiochangesite-(Ce), $(\text{Ca}_8\text{Ce})\square\text{Mg}(\text{PO}_4)_7$, and magnesiochangesite-(Y), $(\text{Ca}_8\text{Y})\square\text{Mg}(\text{PO}_4)_7$. These minerals share the changesite root name, after changesite-(Y) was named in 2022 for Chang'e, goddess of the Moon in traditional Chinese mythology. The type specimens of changesite-(Ce), changesite-(Y), and magnesiochangesite-(Y) were all obtained from the China National Space Administration's Chang'e 5 lunar sample return mission in 2020. Magnesiochangesite-(Ce) also has lunar origins, having been discovered in a fragment of the Pakepake 005 lunar meteorite recovered in Xinjiang, China. Magnesiochangesite-(Ce) and -(Y) are related to the much more common meteoritic phosphate mineral merrillite, $\text{Ca}_9\text{NaMg}(\text{PO}_4)_7$, by way of the coupled substitution $\text{Ce}^{3+}/\text{Y}^{3+} + \square \rightleftharpoons \text{Ca}^{2+} + \text{Na}^+$. Changesite-(Ce) and -(Y) have the same analogy, but with ferromerrillite, $\text{Ca}_9\text{NaFe}^{2+}(\text{PO}_4)_7$.

Georgeliuite, $\text{Ca}_2\text{Mn}_3^{3+}\text{O}_2(\text{AsO}_4)_3(\text{H}_2\text{O})_2 \cdot \text{H}_2\text{O}$

A new calcium manganese arsenate mineral from the Jote mine, georgeliuite, was recently approved. The Jote mine, located in northern Chile, has produced three other new arsenate minerals: alumulukrahnite, joteite, and tapiate—as well as excellent examples of ruffite. Georgeliuite is named for Guanghua (George) Liu, a geologist and mineral collector specializing in Chinese minerals. Among other contributions, he

coauthored two of the minerals featured in this edition of New Mineral Names: wuyanzhiite and wenqingite (Gu et al. 2026; Meng et al. 2026).

Jordanówite, $\text{Zr}(\text{Ti}_3^{3+}\text{Zr})\text{Ti}_4^{3+}\text{AlO}_{16}$

Jordanówite is a new trivalent titanium mineral discovered at the Jordanów granite quarry in western Poland. It is closely related to jianmuite, $\text{Zr}(\text{Ti}^{3+}\text{Zr})\text{Ti}_4^{3+}\text{AlO}_{16}$, a relatively new mineral described from the Allende meteorite and the very unusual CR-11 orebody hosted within the Luobusha ophiolite in southwestern China. In total, the quarries near Jordanów Śląski have produced seven new minerals. Most of these new species are chemically unusual—and for entirely different reasons. Jordanówite has trivalent titanium, which is extremely rare on Earth. Heflikite, scandi-winchite, and dubińskaite contain essential scandium. And allanite-(Sm) is one of only three approved species with essential samarium. The recently published mineral nioboixiolite-(Fe²⁺) was also discovered near Jordanów Śląski (Zepek-Pogudcz et al. 2026).

Petfordite, $\text{ZrW}_2^{6+}\text{O}_7(\text{OH})_2(\text{H}_2\text{O})_2$

Petfordite is a new zirconium tungstate from dumps of the Bamford Hill mine in Queensland, Australia. It is the tungsten analog of kingsgateite, $\text{ZrMo}_2^{6+}\text{O}_7(\text{OH})_2 \cdot 2\text{H}_2\text{O}$, described by the same authors from the Kingsgate mines in New South Wales (Elliott and Kampf 2022) and the locality that also produced colchesterite, detailed below. Zirconium and tungsten make a highly unusual pairing. Only four approved species contain both, and in three of them [johnsenite-(Ce), khomyakovite, and manganokhomyakovite] tungsten is a minor constituent of a complex eudialyte-group formula, leaving petfordite as the only species with Zr and W as the sole cations. It is chemically one of a kind, but also structurally unprecedented. A review of the Mindat API (<https://www.mindat.org/>, Hudson Institute of Mineralogy) indicates that petfordite is one of only two minerals crystallizing in the tetragonal space group $I4_1cd$, the other being kingsgateite. The pair inherit this incredibly rare symmetry (for minerals) from the structure Clearfield and Blessing (1972) determined for synthetic $\text{ZrMo}_2\text{O}_7(\text{OH})_2 \cdot 2\text{H}_2\text{O}$, a framework of cross-linked chains of pentagonal-bipyramidal Zr and octahedral Mo. The Bamford Hill workings have now yielded four new species, all secondary molybdates or tungstates: bamfordite, morningstarite, ootannite, and petfordite.

Xianhuaite-(La), $\text{K}_2\text{LaNb}_5\text{O}_{15}$

Xianhuaite-(La) is a new mineral discovered at the East mine, part of the Bayan Obo deposit in northern China. It is the lanthanum analog of xianhuaite-(Ce), also discovered at the East mine and recently published by Yang et al. (2026a). These minerals exhibit the tetragonal

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† All minerals have been approved by the IMA CNMNC. For a complete listing of all IMA-validated unnamed minerals and their codes, see <http://cnmnc.units.it/>.

TABLE 1. New minerals approved by the IMA-CNMNC from February–July 2026

Mineral	Formula	IMA #	Space Group	Type Locality Area	Country	New RN
petfordite	$\text{ZrW}_6^{4+}\text{O}_7(\text{OH})_2(\text{H}_2\text{O})_2$	2025-079a	<i>I4₁cd</i>	Bamford Hill mine	Australia	Y
bernwoodite	$\text{Ca}_2\text{TiAl}_2\text{Si}_2\text{O}_{14}$	2025-072	<i>C2/c</i>	Juina	Brazil	Y
piilonenite-(Nd)	$\text{NaNd}(\text{CO}_3)_2(\text{H}_2\text{O})_3$	2025-031b	<i>P2₁2₁2₁</i>	Poudrette quarry	Canada	Y
georgeliuite	$\text{Ca}_2\text{Mn}_3^{3+}\text{O}_7(\text{AsO}_4)_3(\text{H}_2\text{O})_2 \cdot \text{H}_2\text{O}$	2025-093	<i>Cm</i>	Jote mine	Chile	Y
agujaite	$\text{Na}_6\text{Al}_6(\text{H}_2\text{O})_{15}(\text{OH})_3(\text{AsO}_4)_3(\text{AsO}_3\text{OH})_3 \cdot 3\text{H}_2\text{O}$	2026-010	<i>P3c1</i>	Torreillas mine	Chile	Y
magnesio-fluoro-riebeckite	$\square\text{Na}_2(\text{Mg}_3\text{Fe}_3^{3+})(\text{Si}_6\text{O}_{22})\text{F}_2$	2026-007	<i>C2/m</i>	Bayan Obo	China	N
xianhuaite-(La)	$\text{K}_3\text{LaNb}_5\text{O}_{15}$	2025-087	<i>P4/mbm</i>	Bayan Obo	China	N
yulinite	SrNb_2O_6	2025-096	<i>P2₁/c</i>	Bayan Obo	China	Y
magnesiochangesite-(Ce)	$(\text{Ca}_8\text{Ce})\square\text{Mg}(\text{PO}_4)_7$	2025-102	<i>R3c</i>	Pakepake 005 meteorite	China	N
luoxianchangite	$\text{Ag}_8\text{Sn}_5\text{Se}_2$	2026-004	<i>Pmn2₁</i>	Shuangjianzishan deposit	China	Y
kristekite	$\text{Cu}_2(\text{H}_2\text{O})_3(\text{UO}_2)(\text{SeO}_3)_3 \cdot 4\text{H}_2\text{O}$	2025-101	<i>P2₁/m</i>	Přibram	Czech Rep.	Y
vanadoandrosite-(La)	$\text{Mn}^{2+}\text{La}(\text{V}^{3+}\text{AlMn}^{2+})(\text{Si}_2\text{O}_7)(\text{SiO}_4)\text{O}(\text{OH})$	2026-009	<i>P2₁/m</i>	Mogurazawa mine	Japan	N
zhaoyuanite	$\text{MnZnTe}_4^{2+}\text{O}_{10}$	2026-006	<i>P4₁/nbc</i>	Moctezuma mine	Mexico	Y
sombrereteite	$\text{NaCa}_3(\text{Al}_2\text{Si}_9)\text{O}_{32}$	2025-095a	<i>C2/c</i>	Sombrerete meteorite	Mexico	Y
zincocaberite	$\text{ZnMg}_2(\text{AsO}_4)_2(\text{H}_2\text{O})_8$	2026-013	<i>C2/m</i>	Bou Azzer mine	Morocco	N
jordanowite	$\text{Zr}(\text{Ti}^{3+}\text{Zr})\text{Ti}_2^{3+}\text{AlO}_{16}$	2025-018a	<i>I4₁/a</i>	Jordanów Śląski	Poland	Y
plechovite	$\text{Ca}_2[\text{K}(\text{H}_2\text{O})]\text{KB}_2\text{Si}_2\text{O}_{30}$	2025-045a	<i>P6/mcc</i>	Jordanów Śląski	Poland	Y
alexshubnikovite	$\text{Ca}_2\text{Cu}_6(\text{AsO}_4)_4(\text{OH})_3\text{Cl}(\text{H}_2\text{O})_8 \cdot 2\text{H}_2\text{O}$	2025-100	<i>P2/c</i>	Khovu-Aksy deposit	Russia	Y
sakhanaiskite	$(\text{Fe}^{2+}\text{Ti})\text{Nb}_2\text{O}_8$	2026-008	<i>P2/c</i>	Sakhanaiskiy massif	Russia	Y
hugotibergite	$\text{Ca}_2\text{CaPb}_2(\text{Si}_3\text{O}_9)_2(\text{SO}_4)_2(\text{OH})_2(\text{H}_2\text{O})_4$	2026-014	<i>C2/m</i>	Långban mine	Sweden	Y
leishmanite	$\text{Ba}(\text{H}_2\text{O})_4[(\text{UO}_2)_3\text{O}_2(\text{OH})_3]_2 \cdot 3\text{H}_2\text{O}$	2026-002	<i>Pmn2₁</i>	Grand Alou valley	Switzerland	Y
dmitrievite	$\text{Sb}_2\text{Cl}_2\text{O}_5$	2026-003	<i>P2₁/c</i>	Solnechnoye deposit	Tajikistan	Y
flatimerite	$[\text{Al}_{13}(\text{OH})_{24}(\text{H}_2\text{O})_{24}][\text{V}_3^{5+}\text{V}^{4+}\text{O}_{28}]\cdot[(\text{SO}_4)_4(\text{H}_2\text{O})_{24}]$	2026-017	<i>P1</i>	Burro mine	U.S.A.	Y
paulhlavaite	$\text{CaCuTe}_4^{2+}\text{O}_{10}$	2025-092	<i>C2/c</i>	Lone Pine mine	U.S.A.	Y
hydroxyapophyllite-(NH ₄)	$(\text{NH}_4)\text{Ca}_4(\text{Si}_6\text{O}_{20})(\text{OH})(\text{H}_2\text{O})_8$	2025-064a	<i>P4/mcn</i>	Kaidun meteorite	Yemen	N
changesite-(Ce)	$(\text{Ca}_8\text{Ce})\square\text{Fe}(\text{PO}_4)_7$	2025-098	<i>R3c</i>	Chang'E-5 landing site	Moon	N
magnesiochangesite-(Y)	$(\text{Ca}_8\text{Y})\square\text{Mg}(\text{PO}_4)_7$	2025-090	<i>R3m</i>	Chang'E-5 landing site	Moon	N

Notes: All minerals have been approved by the IMA-CNMNC. For a complete listing of all IMA-validated unnamed minerals and their codes, see <http://cnmnc.units.it/>. The data contained within this chart were derived from Newsletters 90–92 (Bosi et al. 2026a, 2026b, 2026c); individual references for each mineral can be found within. The type locality names have been simplified for readability on a chart, and are organized by type locality country of origin. The “New RN” column conveys which mineral names introduce a new root name.

(*P4/mbm*) tungsten bronze-type framework comprising corner-sharing NbO_6 octahedra. Two types of interstitial channels in the framework host high-coordination cations. The wider channels host potassium, whereas rare earth elements are coordinated in the tighter channel. The root name honors Xianhua Li, a geologist with the Chinese Academy of Sciences who made important contributions to the study of the Bayan Obo deposit.

Minerals Belonging to Established Nomenclature Systems

Magnesio-fluoro-riebeckite was named according to the nomenclature recommendations for amphibole species. Magnesiochangesite-(Ce), magnesiochangesite-(Y), and changesite-(Ce) use the changesite root name established with changesite-(Y), a member of the cerite supergroup. Vanadoandrosite-(La) is part of the epidote supergroup. Hydroxyapophyllite-(NH₄) is a member of the apophyllite group. Xianhuaite-(La) was named via the Levinson rule as the lanthanum analog of xianhuaite-(Ce).

RECENTLY PUBLISHED

This section includes some of the recently approved minerals that have been published (or entered press) since February 2026.

Argentotennantite-(Fe), $\text{Ag}_6(\text{Cu}_4\text{Fe}_2)\text{As}_4\text{S}_{13}$

Argentotennantite-(Fe) is a new member of the tetrahedrite group described from the San Genaro mine in Peru (Sejkora et al. 2026). Tennantite was named in the early 19th century for English chemist Smithson Tennant (1761–1815), best known for having discovered the elements iridium and osmium. Tetrahedrite, due to its abundance and importance as a host for silver in hydrothermal vein systems, had been known about since much earlier times and was mentioned under a different name (*argentum rude album*) by Agricola in his famous work *De re metallica*, published in 1556. Prior to a revision of the tetrahedrite group speciation and nomenclature by Biagioni et al. (2020), 10 species were ascribed to it. More recent structural work enabled by significantly improved crystal structure refinement methods led to recognition of the structural formula $A_6(B_4C_2)D_4Y_{12}Z$ where *A*, *B*, *C*, and *D* are metal sites (although *A* can also be a partial vacancy, begetting the *keno* prefix) and

Y and *Z* are chalcogenide sites. As Sejkora et al. (2026) point out, this important revision has since enabled the description of 28 new species in the tetrahedrite group.

Bainbridgeite-(NdCe), $\text{Na}_2\text{Ba}_2\text{NdCe}(\text{CO}_3)_6 \cdot 3\text{H}_2\text{O}$

Bainbridgeite-(NdCe) is a new member of the mckelveyite group described from the famous Poudrette quarry at Mont St. Hilaire in Quebec, Canada (Lykova et al. 2026a). The Poudrette quarry accesses a series of igneous and metamorphic units associated with the formation of the Cretaceous-aged Monteregian Hills intrusions. These alkaline rocks exhibit unusual elemental enrichments, yielding unique mineral assemblages. Enrichments in alkali metals, high field strength elements, and carbonate have favored the formation of mckelveyite-group minerals at both Poudrette quarry and Francon quarry, another well-known locality within the Monteregian Hills. The mckelveyite group has received attention in recent years with the discovery of greater diversity and structural complexity in its members than was previously thought. Intriguingly, these minerals appear to exhibit ordering of trivalent rare earth elements into distinct structural sites. Careful work by Lykova et al. (2023a, 2023b) demonstrated ordering where the rare earth element sites exhibited dominance in different elements, permitting a nomenclatural distinction and the establishment of alicewilsonite-(YCe), alicewilsonite-(YLa), bainbridgeite-(YCe), and bainbridgeite-(NdCe) as new species within the mckelveyite group. Most samples labeled as “donnayite” from Mont St. Hilaire are, in fact, alicewilsonite or bainbridgeite root-name minerals, and actual donnayite-(Y) is very rare here (I. Lykova, personal communication 2024). The bainbridgeite root name honors Michael Bainbridge, mineral photographer and curator of minerals at the Canadian Museum of Nature, for his contributions to mineral collecting and the preservation of its heritage; Michael was also selected for the 2025 Carnegie Mineralogical Award.

Belmonteite, $\text{CaMn}_2^{2+}(\text{AsO}_4)_2(\text{H}_2\text{O})_5 \cdot 2\text{H}_2\text{O}$

Belmonteite is a new arsenate from the Gambatesa mine in the Graveglia Valley of eastern Liguria, Italy (Biagioni et al. 2026a), and

a good advertisement for museum collections. The only known specimen was picked off the mine dumps in the early 1990s and donated to the University of Genoa, where it sat for 30 years under a handwritten label reading “Ca-Mn arsenate?” until methods capable of working with extremely limited material caught up with it. The new species occurs in vugs of a carbonate vein as white, silky aggregates of thin tabular crystals up to 0.5 mm with tennantite-(Cu), luzonite, and calcite, and is the sixth Mn-bearing arsenate from the Ligurian manganese ores after tiragalloite, coralloite, castellarite, arsenmedaite, and monteneroite. The structure is built from layers containing ribbons of edge-sharing MnO_6 octahedra, decorated on both sides by AsO_4 tetrahedra and Ca polyhedra. The same layer type occurs in the manganese phosphate switzerite and in castellarite. Refinement required a half-occupied Ca site and a rotationally disordered arsenate group; however, Biagioni et al. (2026a) found no superstructure reflections and no lower-symmetry model that removed the disorder without distorting the tetrahedron. Belmonteite honors Donato Belmonte (b. 1978), geochemist at the University of Genoa and coauthor of the descriptions of seven new Ligurian species.

Cadvanite, $\text{Cd}(\text{VO}_3)_2$

Natural cadmium metavanadate was discovered in a post-mining assemblage at the Burro mine and approved under the name cadvanite (Kampf et al. 2026a). It was named for its composition as the first cadmium-vanadium mineral. Despite the appearance of euhedral crystals and needles, no single crystals of natural cadvanite have yet been encountered, and all material is highly polycrystalline. Studies of synthetic cadmium metavanadate facilitated the identification of cadvanite as natural $\text{Cd}(\text{VO}_3)_2$ by comparison of its powder X-ray diffraction pattern with that of its synthetic analog. Cadmium was locally sourced from the breakdown of cadmoselite, whereas vanadium was sourced from the montroseite-corvusite assemblage, which is widespread throughout the Colorado Plateau uranium-vanadium “roll front” systems. Cadvanite is extremely rare, with only a few known examples. Cadvanite is the first post-mining cadmium mineral yet found in the Colorado Plateau, and its extreme rarity is due to the scarcity of cadmium minerals in roll-front systems. Roll-front systems ubiquitously exhibit metal zonation, giving rise to localized patches of distinct primary minerals, including various sulfides and selenides such as pyrite, löllingite, ferroselite, covellite-klockmannite, clausenthalite, cadmoselite, and other minerals. Metal zonation, in combination with other factors such as host-rock lithology, Eh/pH, and humidity, gives rise to highly diverse post-mining mineral assemblages when abandoned mines sit undisturbed for decades.

Colchesterite, $\text{Bi}_2^+\text{Mo}_6^{6-}\text{O}_9$

Colchesterite is a new bismuth molybdate mineral from the Kingsgate mines in New South Wales, Australia (Elliott and Kampf 2026). Although colchesterite is chemically similar to koechlinite, Bi_2MoO_6 , it has an unrelated, novel structure type with Mo_2O_8 dimers of edge-sharing MoO_3 polyhedra surrounded by high-coordination bismuth polyhedra to form a dense framework. The new mineral is named for mineralogist David Colchester. He authored or coauthored the descriptions of cloncurryite, ellsmoreite, gillardite, and grandviewite and also engaged in various mineralogical studies throughout Australia and New Zealand. The Kingsgate mining area was extensively explored and mined for bismuth and molybdenum during the early 20th century. Primary molybdenum mineralization is primarily in the form of molybdenite, whereas primary bismuth minerals here include bismuthinite, native bismuth, and various sulfosalts. Colchesterite is one of several very rare to uncommon secondary minerals encountered in the area; others include koechlinite, ichnusaite, and kingsgateite (<https://www.mindat.org/>; accessed September 2026). Kingsgateite, $\text{ZrMo}_6^+\text{O}_7(\text{OH})_2 \cdot 2\text{H}_2\text{O}$, named for the area, is an exceptionally unusual mineral as the only approved zirconium-molybdenum species. Kingsgateite is a rare mineral with very

few known examples—although a newly recognized find of kingsgateite analyzed by Peter Elliott found ichnusaite, one of just two approved thorium-molybdenum species, in direct association with kingsgateite.

Colomeraite, $\text{NaTi}^{3+}\text{Si}_2\text{O}_6$

The new clinopyroxene mineral colomeraite was discovered in a section of the Colomera meteorite (the namesake for colomeraite), an octahedrite-type iron meteorite found in southern Spain in 1912. In the type specimen, colomeraite occurs as inclusions within antiperthitic albite (Ma and Rubin 2026). Colomeraite has a known synthetic analog, formed under high-pressure, high-temperature, and highly reducing conditions. Ma and Rubin (2026) hypothesize that colomeraite formed as an impact phase from the mingling of melted metallic and silicate minerals under reducing conditions sufficient to stabilize trivalent titanium. Colomeraite joins a growing number of trivalent titanium minerals, nearly all of which are limited to extraterrestrial environments.

Fengruite, Auropearceite, and Auropolybasite

Three new members of the pearceite-polybasite group were recently published: fengruite, $[\text{Ag}_6\text{Sb}_2\text{S}_7][\text{Ag}_9\text{CuS}_2\text{Te}_2]$, auropearceite, $[\text{Ag}_6\text{As}_2\text{S}_7][\text{Ag}_9\text{AuS}_4]$, and auropolybasite, $[\text{Ag}_6\text{Sb}_2\text{S}_7][\text{Ag}_9\text{AuS}_4]$ (Mikuš et al. 2026; Tian et al. 2026). Fengruite was named in honor of exploration geologist Rui Feng, whereas auropearceite and auropolybasite were named in congruence with other pearceite/polybasite root names, particularly cupropearceite, cupropolybasite, argentoppearceite, and argentopolybasite. The pearceite-polybasite group comprises nearly a dozen Ag(-Cu,-Au) chalcogenide minerals with a layered structure archetype with two distinct layer modules (given in separate brackets in mineral formulae). The tendency to accommodate chemical substitutions through site ordering gives rise to crystal-chemical complexity in the group, enabling a huge number of potential group members. Most of the minerals in this group share either the polybasite ($\text{Sb} > \text{As}$) or pearceite ($\text{As} > \text{Sb}$) root name, relating to the A layer (first set of brackets; e.g., $[\text{Ag}_6\text{Sb}_2\text{S}_7]$ in polybasite). The pearceite-polybasite group nomenclature of Bindi et al. (2007) primarily resolved issues relating to polytypism and did not establish prescriptive chemical naming rules for members of the group. Nevertheless, most members of the group follow simple naming trends relating the members of the group to each other, particularly with respect to Ag/Cu/Au and Sb/As. However, there is less clarity and consistency for modifications to the chalcogenide compositions. Selenopolybasite, simplified as $[\text{Ag}_6\text{Sb}_2\text{S}_7][\text{Ag}_9\text{CuS}_2\text{Se}_2]$, was named as the partial selenium analog of polybasite, $[\text{Ag}_6\text{Sb}_2\text{S}_7][\text{Ag}_9\text{CuS}_4]$. Following this, fengruite is essentially “telluropolybasite.” Benleonardite, $[\text{Ag}_6\text{Sb}_2\text{S}_6\text{Te}][\text{Ag}_9\text{CuS}_2\text{Te}_2]$, is a somewhat more complicated case, as its IMA formula includes a modified A layer with S-Te ordering as well as S-Te ordering in the B layer. As a result, benleonardite is not strictly the Te analog of fengruite and selenopolybasite. Further investigation could yield even more intermediate compositions, potentially requiring new, prescriptive nomenclature rules to handle such minerals.

Friisite, $\text{Pb}_8\text{Al}_3\text{Si}_8\text{O}_{27}\text{Cl}_3$

Friisite is a new lead phyllosilicate mineral discovered on a specimen of jagoite from the Långban mine in southern Sweden (Holtstam et al. 2026). The specimen on which friisite was found had been in the collection of the Swedish Museum of Natural History since 1961. Friisite is closely related to jagoite, $\text{Pb}_{11}\text{Fe}_3^{3+}\text{Si}_{12}\text{O}_{41}\text{Cl}_3$, differing structurally in the stacking of the two layer motifs (tetrahedral, T, and octahedral, O) that make up their structures. Friisite has a simpler, three-layer T-O-T stacking sequence compared to jagoite’s five-layer T-O-T-O-T sequence. Lead and chlorine are located in pores within the layered framework. Compositionally, friisite differs from jagoite principally in its dominance of aluminum over jagoite’s ferric iron. From this, Holtstam et al. (2026) hypothesize that friisite (and jagoite) formed during retrograde

hydrothermal alteration of earlier-formed lead silicates like melanotekite, $\text{Pb}_2\text{Fe}_2^{3+}(\text{Si}_2\text{O}_7)\text{O}_2$, or barysilite, $\text{Pb}_8\text{Mn}^{2+}[\text{Si}_2\text{O}_7]_3$. The aluminum in friisite is thought to have been sourced from the breakdown of albite in the presence of hydrochloric acid. Friisite is named for Henrik Friis, a mineralogist at the University of Oslo specializing in crystal structures and metal mobility.

Horiite, $\text{Ba}_2\text{Mn}_2^{3+}\text{Mn}_4^{2+}\text{Ti}_2^{4+}(\text{Si}_2\text{O}_7)_2(\text{PO}_4)_2\text{O}_2(\text{OH})_2$

Horiite is a new member of the bafertisite group, part of the seidozerite supergroup (Nishio-Hamane et al. 2026). Horiite was discovered at the Taguchi mine in Japan's Aichi prefecture within a metasedimentary manganese deposit. The Taguchi mine is also the type locality for the very rare trioctahedral mica species shirozultite, $\text{KMn}_3^{2+}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_2$. Horiite is named for Japanese mineralogist Hidemichi Hori, who described five new species in Japan and additionally studied the minerals of the Taguchi mine—including a barium-manganese-titanium member of the bafertisite group. However, further studies demonstrated this mineral to be hejtmánite, $\text{Ba}_2\text{Mn}_2^{3+}\text{Ti}_2(\text{Si}_2\text{O}_7)_2\text{O}_2(\text{OH})_2\text{F}_2$, described by Vrana et al. (1992) from a Zambian locality some years after Hori et al. investigated the species at the Taguchi mine. The seidozerite supergroup is a large (~50 species) group of layered silicate minerals, most of which are titanium silicates ($\pm$ phosphate) with various combinations of barium, sodium, and potassium with iron and/or manganese. As in other groups with layered structure archetypes, variations can occur through modifying the sheet components, as well as through combining different sheet archetypes together with more complex stacking sequences. Nishio-Hamane et al. (2026) note that horiite represents a new basic structure type within the bafertisite group, although its overall architecture and chemistry still firmly place it within this group.

Králíkite, $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$

Králíkite is a new hydrous barium chloride mineral discovered in a coal mine in the Moravian-Silesian region in the Czech Republic (Matýšek et al. 2026). It is one of two barium chloride minerals published in recent years, the other being the anhydrous barium chloride vegrandisite (Koděra et al. 2025). Králíkite was found as a scarce component of post-mining halite stalactites within the ČSA mine, formed from the crystallization of briny groundwater drying within the mine tunnels. The salts ultimately derive from Carboniferous basement rocks, offering enrichments in sodium, barium, strontium, iodine, and chlorine (Matýšek et al. 2026). Matýšek et al. mention the occurrence of hydrated strontium chloride phases in one of the stalactite assemblages, additionally consisting of halite, carnallite, and králíkite. The descriptions of these strontium chloride hydrates, as well as potentially new potassium bromide and iodide phases, indicate that completely describing these phases as new mineral species will be extremely challenging given the low abundance and quality of available specimens. Králíkite was named in honor of Jiří Králík, a mineralogist and professor at the Vysoká škola báňská Technical University of Ostrava. Králík was known for his research into biomineralization and the clay minerals of the Lower Silesian basin.

Kristekite, $[\text{Cu}_2(\text{H}_2\text{O})_4(\text{UO}_2)(\text{SeO}_3)_3] \cdot 4\text{H}_2\text{O}$

Kristekite is the 11th known uranyl selenite species, found on the dumps of shaft no. 11A at Bytíz in the Příbram uranium and base-metal district, Czech Republic (Plášil et al. 2026). It occurs as hedgehog-like sprays of yellowish-green tabular crystals on weathered gangue carrying pitchblende and copper selenides, with piritite, clinochalcomenite, brochantite, and devilline. Structurally, the mineral is more novel than its composition suggests. Other uranyl selenites are built on sheets of the phosphuranyl topology, but the sheets in kristekite are unique to minerals and synthetic U^{6+} compounds, with chains of UO_7 pentagonal bipyramids and selenite pyramids cross-linked by dimers of Jahn-Teller-distorted Cu^{2+} . Copper is part of the sheet rather than an interlayer

species, and because the sheet is electroneutral and the interlayer holds only H_2O , adjacent sheets are held together by hydrogen bonds alone. Kristekite honors Czech collector Jakub Kristek (b. 1987), who found the mineral and whose donations have supported several recent studies of Bohemian uranium minerals.

Kryzaite, $\text{Na}_4(\text{MgCr}^{3+})(\text{PO}_4)_3$, and Kopernikite, $\text{K}(\text{Ti}_7\text{Cr}^{3+})\text{O}_{16}$

Kryzaite and kopernikite are two new chromium minerals discovered in the Morasko meteorite, recovered near the town of Poznań in Poland (Galuskin et al. 2026a, 2026b). Kryzaite has a known synthetic analog within the sodium superionic conductor (NASICON) family of compounds, which have been the subject of intense study for the development of sodium-based batteries (Jian et al. 2017). Kopernikite is a new member of the priderite group (hollandite supergroup) found in the Morasko iron meteorite (Galuskin et al. 2026b). It is the Cr^{3+} analog of priderite, $\text{K}(\text{Ti}_7\text{Fe}^{3+})\text{O}_{16}$ and the second member of the group with essential chromium, after redledgeite, $\text{Ba}(\text{Ti}_6\text{Cr}_2^{3+})\text{O}_{16}$. Kopernikite is presently the only approved mineral species with the essential element combination K-Ti-Cr. While the combination K-Ti is quite common (>50 minerals), the combinations K-Ti (10 minerals) and K-Cr (8 minerals) are very uncommon (<https://www.mindat.org/>; accessed August 2026). Kopernikite is very rare, thus far only known as minute grains up to 100 μm occurring within a single small ($6 \times 7 \text{ mm}$) troilite-graphite nodule hosted as an inclusion within the metallic groundmass of the meteorite. Similarly, kryzaite is only known from a single troilite-graphite nodule in a separate specimen (Galuskin et al. 2026a). Based on petrographic context, kopernikite and kryzaite are thought to have formed at high (~950–1000°C) temperatures within drops of phosphate melt. For kopernikite, the melt was hosted within a graphite-rich part of the nodule that was enriched in potassium, barium, titanium, and chromium. These elements became incorporated into the phosphate melt and, due to their incompatibility in fluorapatite, were concentrated in the residual melt phase—ultimately forming kopernikite. Kryzaite is interpreted to have been highly reactive and unstable in the melt, only being preserved by the formation of a rim enriched in ferric iron during a rapid increase in oxygen fugacity (Galuskin et al. 2026a). Kopernikite is named for famed astronomer Mikołaj Kopernik (better known as Nicolaus Copernicus), a Renaissance astronomer from modern-day Poland whose work on the heliocentric theory was incredibly important in the emergence of modern scientific thinking. Kryzaite is named for Polish geologist Ryszard Kryza, who, among other important contributions, codiscovered moraskoite and czocharlskiite from the Morasko iron meteorite (Karwowski et al. 2015).

Lopatkaite, $\text{Pb}_{10}\text{As}_2\text{Sb}_6\text{S}_{22}$

Lopatkaite is a new rod-based lead sulfosalt mineral described from the Taylor Pit in Ontario, Canada (Topa et al. 2026a). It is an arsenic-bearing homeotype of boulangerite, which forms overgrowths over lopatkaite at the Taylor Pit. Early studies by noted Canadian mineralogist John Jambor (jamborite and johnjamborite) of the Geological Survey of Canada indicated that earlier arsenic-rich sulfide mineralization here was overprinted by later antimony-rich fluids (Jambor et al. 1982). Arsenic for antimony substitution (and vice versa) is common in numerous sulfosalt minerals as an impurity, and at times generates chemical analogs (e.g., richardsollyite as the arsenic analog of markwelchite). In the 14 years since its approval by the IMA-CNMNC, lopatkaite has been confirmed through chemical and structural studies at an additional two localities (the Barika deposit in Iran and Balmat in the U.S.A.) and has further been tentatively identified from microprobe data from three more localities.

Modraite, $\text{Ca}_{19}\text{Fe}^{2+}\text{Al}_4(\text{Al}_2\text{Fe}^{2+})(\text{SiO}_4)_{10}(\text{Si}_2\text{O}_7)_4\text{O}(\text{OH})_9$

Modraite is a new member of the vesuvianite group named for its place of discovery near the town of Modra in Bratislava, Slovakia (Uher et al. 2026). Modraite was discovered in a skarn assemblage formed at

the contact aureole of Devonian limestone units with a Carboniferous-aged granite intrusion. Compared to vesuvianite, modraite has Fe^{2+} in place of Fe^{3+} (balanced by protonation to form an additional OH group) as well as Fe^{2+} rather than Mg. The structural complexity of the vesuvianite group makes the identification of individual species difficult, but leaves open the possibility of a huge number of possible endmembers. Despite (or perhaps because of) this, only 11 vesuvianite group species have been approved to date.

Piilonenite-(Nd), $\text{NaNd}(\text{CO}_3)_2 \cdot 3\text{H}_2\text{O}$

Piilonenite-(Nd) is a new rare earth carbonate from the Poudrette pegmatite at Mont Saint-Hilaire, Quebec, Canada, and the second Nd-dominant species from the locality after bainbridgeite-(NdCe) (Lykova et al. 2026a, 2026b). Its description settles a long-known Mont Saint-Hilaire unknown: material collected in 2000 and cataloged as “UK119” had resisted structure attempts by Joel Grice and Igor Pekov. Lykova et al. (2026b) found that UK119 is in fact two phases collected together: piilonenite-(Nd) and an unrelated Na-Ce carbonate. The bladed crystals are easily bent and give split, streaked reflections, so the structure was solved from synchrotron data ($R_1 = 0.092$, with inversion twinning). It is a new structure type in which layers of vertex-sharing Nd polyhedra and carbonate groups alternate with chains of Na octahedra and carbonate groups standing on edge; adamsite-(Y), $\text{NaY}(\text{CO}_3)_2 \cdot 6\text{H}_2\text{O}$, shares the same Na:REE ratio and related carbonate orientations, but its layers stack differently. Neodymium is seldom dominant in a mineral (37 species as of April 2026) because its size falls between those of Ce and Y, and it usually disperses into their phases instead. Lykova et al. (2026b) note that piilonenite-(Nd), bainbridgeite-(NdCe), and mckelveyite-(Nd) all have Y-dominant rather than Ce-dominant relatives, and that Y reaches 0.53 apfu in parts of the type material. The name honors Paula Piilonen (b. 1974), research scientist at the Canadian Museum of Nature and a former president of the Mineralogical Association of Canada.

Raudseppite, $\text{Ba}_2\text{Ca}_7(\text{Si}_3\text{O}_{10})_2(\text{CO}_3)_2\text{Cl}_2$

Raudseppite is a new barium silicate mineral from the Gun claim in the Yukon Territory, Canada (Macquistan et al. 2026). The Gun claim has proven to be a mineralogically interesting area with a total of eight new mineral species found here. Early studies of the site’s barium mineralization led to the descriptions of pellyite and titantaramellite. More recent work in the last two decades yielded an additional six minerals. Ferrimuirite, itsiite, raudseppite, and ronpetersonite were described within the last five years. Similar barium silicate occurrences in Baja California, Mexico, and across central California, U.S.A., have demonstrated that such occurrences can have remarkable mineral diversity in their barium silicate assemblages. The most well-known example is likely the Big Creek/Rush Creek area in Fresno County, California, where 15 new barium silicate minerals were described, as well as alforsite, the barium analog of pyromorphite and chlorapatite. Raudseppite is named for Mati Raudsepp, an X-ray diffraction specialist at the University of British Columbia in Vancouver.

Sulfopadmaite, PdBiS

Sulfopadmaite is a new member of the cobaltite group described by Strelnikov et al. (2026) from the Srednyaya Padma mine in Karelia, northwestern Russia. The new mineral is the sulfide analog of padmaite, PdBiSe , in turn named for the Padma mine. The Padma mine has been a relatively productive locality for new species, totaling seven minerals: chromceladonite, malyshevite, padmaite, selenojunoite, sudovikovite, sulfopadmaite, and zincochromite (<https://www.mindat.org/>, accessed August 2026). Sulfopadmaite most typically occurs as grains zoned with padmaite situated between grains of clausenthalite and chromceladonite within clausenthalite-chromceladonite-dolomite veins (Strelnikov et al. 2026).

Wenqingite, $\text{Pb}_5(\text{AsS}_3)_2(\text{Ge}_2\text{S}_6)$

Wenqingite is a chemically and structurally unique new sulfide mineral discovered at the Wusihe lead-zinc deposit in Sichuan, China (Meng et al. 2026). The Wusihe deposit is a sediment-hosted hydrothermal system with uncertain origins as either a sedimentary exhalative deposit or a Mississippi Valley-type deposit. Wenqingite was found in the same assemblage in which another recently named lead germanium sulfide, ruizhongite (IMA 2022-066), $(\text{Ag}, \square)\text{Pb}_3\text{Ge}_2\text{S}_8$, was discovered. In this assemblage, wenqingite occurs disseminated within sphalerite or on grain boundaries between sphalerite and galena in association with pyrite, jordanite, and ruizhongite. Wenqingite is one of only four germanium-arsenic minerals (three of which are sulfides, including wenqingite) and the only mineral with the combination Pb-As-Ge-S. Wenqingite has a layered structure with alternating $\text{Pb}_2(\text{Ge}_2\text{S}_6)$ and $\text{Pb}_3[\text{AsS}_3]_2$ sheets, respectively. The unique motif within the wenqingite structure is the Ge_2S_6 dimer, comprising two edge-sharing GeS_4 tetrahedra. Wenqingite is named for Wenqing Qin, a professor at Central South University in Hunan, China. Qin is primarily known for his work on mineral processing, metallurgy, and recycling. His impressive body of work illustrates the strong applicability of mineralogical knowledge in materials science and technology.

Wuyanzhiite, Cu_2S

A new dimorph of chalcocite was discovered at the Baifang mine in Hunan, China; the new mineral is named wuyanzhiite in honor of Wu Yanzhi, formerly a professor of economic geology at Central South University in Hunan (Gu et al. 2026). In the type material, wuyanzhiite occurs as very small anhedral grains forming aggregates or ribbons and frequently intimately associated with other simple copper sulfides, tennantite-(Zn), and zeunerite. In addition to difficulties imparted by small grain size, the solution of wuyanzhiite’s structure was made harder by pseudomorph twinning. In tetragonal structures, twinning by 90° rotation about both *a*-axes imparts a pseudocubic symmetry to the diffraction pattern. Deconvolving such twins is very challenging. Additionally, knowledge of the structure of its known synthetic analog aided Gu et al. (2026) in solving the structure of the natural material. Furthermore, data on the synthetic analog of wuyanzhiite indicate that the pure phase is unstable at ambient laboratory conditions and decomposes to a mixture of chalcocite, djurleite, and digenite over the course of months to years. Interestingly, the authors note that wuyanzhiite samples with higher iron contents exhibited better long-term stability than purer samples. Samples of synthetic iron-rich wuyanzhiite prepared in 2012 were confirmed as unaltered by powder X-ray diffraction experiments performed in 2025.

Yttrotungstite-(Nd), $\text{NdW}_2\text{O}_7(\text{OH})(\text{H}_2\text{O})$

Yttrotungstite-(Nd) is a new analog of yttrotungstite-(Y) and yttrotungstite-(Ce). The neodymium member was first encountered at the Clara mine in Germany, although it could not be completely characterized. Newly recognized material from the Nyakabingo mine in Rwanda permitted the description of the species by Hatert et al. (2026). Yttrotungstite-(Nd) was found as part of a secondary assemblage in association with anthoinite, $\text{AlWO}_3(\text{OH})_3$, and hydrokenoelsmoreite, $\square_2\text{W}_2\text{O}_6(\text{H}_2\text{O})$. The cerium member is also known to occur at the Nyakabingo mine (referred to as “cerotungstite”; Dewaele et al. 2016). The revisitation of the structure by Hatert et al. (2026) permitted the redefinition of the ideal formula for this mineral group. Previously, the given formulae for yttrotungstite-(Ce) and yttrotungstite-(Y) were not in agreement in hydration or formatting. Yttrotungstite-(Ce) was defined as $\text{CeW}_2\text{O}_6(\text{OH})_3$, and yttrotungstite-(Y) was represented by the simplified empirical formula $\text{Y}(\text{W}, \text{Fe}, \text{Si}, \text{Al}, \text{Ti})_2(\text{O}, \text{OH}, \text{H}_2\text{O})_6$. Through bond-valence analysis, Hatert et al. (2026) determined that the yttrotungstite structure has one OH group and one H_2O group per formula unit, leading to a redefinition of both earlier named yttrotungstite group members and the formal establishment of the yttrotungstite group.

Other Recent Minerals

Other recently published minerals include almagreraite (Kampf et al. 2026b), babunaite-(Nd) (Galuskin et al. 2026), bayanoboite-(Y) (Xue et al. 2026), delchiaroite (Biagioni et al. 2026b), domitrovicite (Yang et al. 2026b), erzwiesite (Topa et al. 2026b), ferroåkermanite (Juroszek et al. 2026), hartkoppeite (Kampf et al. 2026c), karltditmarite (Siidra et al. 2026), liddicoatite (Skiřpová et al. 2026), magselite (Emproto et al. 2026a), mampsisite (Britvin et al. 2026), niobobaotite (Ge et al. 2026), plumbogottlobite (Kampf et al. 2026d), puschridgeite (Yang et al. 2026b), shenganfuite (Yang et al. 2026c), and sigogglinite (Emproto et al. 2026b).

RECENT NOMENCLATURE AND CLASSIFICATION CHANGES

The most significant recent nomenclature change was a refinement of the compositional range of the stilpnomelane group, which led to the discreditation of franklinphilitite and ekmanite. Minor changes included the renaming of schultenite to schulténite and a correction to the ideal formula of modraite. There have also been numerous minor changes to the formatting and representation of mineral formulas in the IMA-CNMNC list of valid minerals throughout the last few editions of the list. This reflects a desire to shift towards unambiguous species definitions, especially for minerals with known structures.

REFERENCES CITED

- Biagioni, C., George, L.L., Cook, N.J., Makovicky, E., Mořlo, Y., Pasero, M., Sejkora, J., Stanley, C.J., Welch, M.D., and Bosi, F. (2020) The tetrahedrite group: Nomenclature and classification. *American Mineralogist*, 105, 109–122, <https://doi.org/10.2138/am-2020-7128>.
- Biagioni, C., Sejkora, J., and Dolniřek, Z. (2026a) Belmonteite, $\text{CaMn}_2(\text{AsO}_4)_2(\text{H}_2\text{O}) \cdot 2\text{H}_2\text{O}$, a new arsenate mineral from the Mn ore deposits of the Graveglia Valley, eastern Liguria, Italy. *European Journal of Mineralogy*, 38, 531–543, <https://doi.org/10.5194/ejm-38-531-2026>.
- Biagioni, C., Sejkora, J., Mořlo, Y., Criscuolo, A., and Dolniřek, Z. (2026b) When mineralogy meets the organic chemistry: delchiaroite, $\text{Cu}_2\text{I}(\text{CH}_3\text{S})_2$, the first copper iodide–methanethiolate from the Carrara marble quarries, Apuan Alps, Tuscany, Italy. *European Journal of Mineralogy*, 38, 153–167, <https://doi.org/10.5194/ejm-38-153-2026>.
- Bindi, L., Evain, M., Spry, P.G., and Menchetti, S. (2007) The pearceite-polybasite group of minerals: Crystal chemistry and new nomenclature rules. *American Mineralogist*, 92, 918–925, <https://doi.org/10.2138/am.2007.2440>.
- Bosi, F., Hatert, F., Pasero, M., and Mills, S.J. (2026a) IMA Commission on New Minerals, Nomenclature and Classification (CNMNC)—Newsletter 90. *Mineralogical Magazine*, 90, 486–489, <https://doi.org/10.1180/mgm.2026.10217>.
- Bosi, F., Hatert, F., Pasero, M., and Mills, S.J. (2026b) IMA Commission on New Minerals, Nomenclature and Classification (CNMNC)—Newsletter 91. *Mineralogical Magazine*, 90, 772–776, <https://doi.org/10.1180/mgm.2026.10236>.
- Bosi, F., Hatert, F., Pasero, M., and Mills, S.J. (2026c) IMA Commission on New Minerals, Nomenclature and Classification (CNMNC)—Newsletter 92. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10247>.
- Britvin, S.N., Murashko, M.N., Vlasenko, N.S., Vereshchagin, O.S., Bocharov, V.N., and Vapnik, Y. (2026) Mampsisite, $\text{Ca}_2\text{Al}_2(\text{OH})_2(\text{CO}_3) \cdot 5\text{H}_2\text{O}$, a new mineral and a new polymorph of the cementitious AFm monocarboaluminate. *American Mineralogist*, 111, 826–835, <https://doi.org/10.2138/am-2025-9950>.
- Clearfield, A. and Blessing, R.H. (1972) The preparation and crystal structure of a basic zirconium molybdate and its relationship to ion exchange gels. *Journal of Inorganic and Nuclear Chemistry*, 34, 2643–2663, [https://doi.org/10.1016/0022-1902\(72\)80213-6](https://doi.org/10.1016/0022-1902(72)80213-6).
- Dewaele, S., De Clercq, F., Hulsbosch, N., Piessens, K., Boyce, A., Burgess, R., and Muchez, P. (2016) Genesis of the vein-type tungsten mineralization at Nyakabingo (Rwanda) in the Karagwe–Ankole belt, Central Africa. *Mineralium Deposita*, 51, 283–307, <https://doi.org/10.1007/s00126-015-0608-x>.
- Elliott, P. and Kampf, A.R. (2022) Kingsgateite, $\text{ZrMo}^{6+}_2\text{O}_7(\text{OH}) \cdot 2\text{H}_2\text{O}$, the first natural zirconium molybdate from Kingsgate, New South Wales, Australia. *Mineralogical Magazine*, 86, 486–491, <https://doi.org/10.1180/mgm.2022.43>.
- (2026) Colchesterite, $\text{Bi}^{3+}_2\text{O}[\text{Mo}^{6+}_2\text{O}_8]$, a new Bi molybdate mineral from the Kingsgate mines, New South Wales, Australia. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10234>.
- Emproto, C., Olds, T.A., Kampf, A.R., Ma, C., and Marty, J. (2026a) Magselite, $[\text{Mg}(\text{H}_2\text{O})_6](\text{SeO}_3)$, a new selenite mineral from the Pickett Corral Mine, Colorado, USA. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10219>.
- Emproto, C., Olds, T.A., Kampf, A.R., Smith, J.B., Ma, C., and Hughes, J.M. (2026b) New minerals from the Redmond Mine, North Carolina, USA: XI. Sigogglinite, a new sulfate with the novel $\text{Pb}_2\text{Zn}(\text{OH})_8$ dimer. *The Canadian Journal of Mineralogy and Petrology*, 64(3), 261–274, <https://doi.org/10.3749/2500024>.
- Galuskin, E.V., Muszyński, A., Panikarovskii, T.L., Kusz, J., Księżek, M., Galuskin, I.O., Zieliński, G., and Prusik, K. (2026a) Kryzaite, $\text{Na}_4(\text{MgCr}(\text{PO}_4)_3)$ —a new mineral from the Morasko IAB-MG iron meteorite (Poland) and the first natural NASICON compound. *American Mineralogist*, in press, <https://doi.org/10.2138/am-2025-10138>.
- Galuskin, E.V., Muszyński, A., Kusz, J., Księżek, M., Galuskin, I., and Zieliński, G. (2026b) Kopernikite, $\text{K}(\text{Ti,Cr}^{3+})\text{O}_{16}$ —a new priderite-group mineral from the Morasko IAB-MG iron meteorite, Poland: 150 years of the Mineralogical Society: Past Discoveries and Future Frontiers. *Mineralogical Magazine*, 90(3), 625–634, <https://doi.org/10.1180/mgm.2026.10230>.
- Galuskin, I.O., Kusz, J., Księżek, M., Jančev, S., Petrov, P., Zieliński, G., and Galuskin, E. (2026) Babunaite-(Nd), $\text{Nd}(\text{AsO}_4)$ —the first REE-arsenate in the scheelite group from Nežilovo village area, North Macedonia: 150 years of the Mineralogical Society: Past Discoveries and Future Frontiers. *Mineralogical Magazine*, 90(3), 615–624, <https://doi.org/10.1180/mgm.2026.10222>.
- Ge, X., Fan, G., Li, T., Wang, T., and Deng, L. (2026) Niobobaotite, $\text{Ba}_4(\text{Ti}_2\text{Fe}^{2+}_{1.5})\text{Nb}_4(\text{Si}_4\text{O}_{12})\text{O}_{16}\text{Cl}$, a new mineral species from the Bayan Obo REE-Nb-Fe deposit, Inner Mongolia, China. *American Mineralogist*, in press, <https://doi.org/10.2138/am-2025-10096>.
- Gu, X., Shi, X., Yang, H., and Liu, G. (2026) Crystal chemistry and phase stability of wuyanzhiite, a new mineral dimorphous with chalcocite, from the Bofang Copper Mine, Hunan, China. *American Mineralogist*, 111, 736–745, <https://doi.org/10.2138/am-2025-9910>.
- Hatert, F., Philippo, S., Vignola, P., and Guennou, M. (2026) Yttrotingstite-(Nd), a new mineral species from the Nyakabingo tungsten mine, Kigali, Rwanda. *European Journal of Mineralogy*, 38, 373–382, <https://doi.org/10.5194/ejm-38-373-2026>.
- Holstam, D., Cámara, F., and Karlsson, A. (2026) Friisite, $\text{Pb}_8\text{Al}_2\text{Si}_8\text{O}_{27}\text{Cl}_3$, a new mineral with a polysomatic relation to jagoite, from Långban, Sweden. *European Journal of Mineralogy*, 38, 169–177, <https://doi.org/10.5194/ejm-38-169-2026>.
- Jambor, J.L., Laflamme, J.H.G., and Walker, D.A. (1982) A reexamination of the Madoc sulfosalts. *The Mineralogical Record*, 13, 93–100.
- Jian, Z., Hu, Y. S., Ji, X., and Chen, W. (2017) Nasicon-structured materials for energy storage. *Advanced Materials*, 29, 1601925, <https://doi.org/10.1002/adma.201601925>.
- Juroszek, R., Krüger, B., Vapnik, Y., and Galuskin, E. (2026) Ferroåkermanite, $\text{Ca}_2\text{FeSi}_2\text{O}_7$ —a new mineral from the reduced kirschsteinite-bearing paralava, Hatrurim Complex, Israel. *Mineralogical Magazine*, 90, 286–296, <https://doi.org/10.1180/mgm.2025.10120>.
- Kampf, A.R., Celestian, A.J., Ma, C., Rose, T.P., and Marty, J. (2026a) Cadvanite, a new cadmium vanadate from the Burro Mine, San Miguel County, Colorado, USA. *The Canadian Journal of Mineralogy and Petrology*, 64, 185–193, <https://doi.org/10.3749/2500061>.
- Kampf, A.R., Favreau, G., Ma, C., and Stanley, C. (2026b) Almagreraite, $\text{Cu}^2+\text{ZnMn}^{2+}\text{O}_8$, a new mineral with a nolanite-related structure: 150 years of the Mineralogical Society: Past Discoveries and Future Frontiers. *Mineralogical Magazine*, 90, 608–614, <https://doi.org/10.1180/mgm.2025.10186>.
- Kampf, A.R., Möhn, G., Ma, C., and Désor, J. (2026c) Hartkoppeite, a new mineral with a novel polyoxometalate sandwich cluster. *American Mineralogist*, in press, <https://doi.org/10.2138/am-2026-10210>.
- Kampf, A.R., Désor, J., and Ma, C. (2026d) Plumbogottlobite, $\text{PbMg}(\text{VO}_4)(\text{OH})$, the Pb analogue of gottlobite and the Mg analogue of descloizite. *European Journal of Mineralogy*, 38(2), 209–216, <https://doi.org/10.5194/ejm-38-209-2026>.
- Karwowski, Ł., Kusz, J., Muszyński, A., Kryza, R., Sitarz, M., and Galuskin, E.V. (2015) Moraskoite, $\text{Na}_2\text{Mg}(\text{PO}_4)\text{F}$, a new mineral from the Morasko IAB-MG iron meteorite (Poland). *Mineralogical Magazine*, 79(2), 387–398, <https://doi.org/10.1180/minmag.2015.079.2.16>.
- Koděra, P., Majzlan, J., Pollok, K., and Šimko, F. (2025) Vegrandisite (BaCl_2) a new mineral from salt melt inclusions from the Biely Vrch porphyry gold deposit, Slovakia. *Journal of Geosciences*, 70(3), 189–197, <https://doi.org/10.3190/jgeosci.0035.25>.
- Lykova, I., Rowe, R., Poirier, G., Giester, G., Ojaste, K., and Friis, H. (2023a) Mckelveyite group minerals—Part 1: Nomenclature and new data on donnayite-(Y). *European Journal of Mineralogy*, 35, 133–142, <https://doi.org/10.5194/ejm-35-133-2023>.
- Lykova, I., Rowe, R., Poirier, G., Friis, H., and Helwig, K. (2023b) Mckelveyite group minerals—Part 2: Alicewilsonite-(YCe), $\text{Na}_2\text{Sr}_2\text{YCe}(\text{CO}_3)_6 \cdot 3\text{H}_2\text{O}$, a new species. *European Journal of Mineralogy*, 35, 143–155, <https://doi.org/10.5194/ejm-35-143-2023>.
- Lykova, I., Rowe, R., Poirier, G., Friis, H., Ojaste, K., and Barnes, S. (2026a) Mckelveyite group minerals—Part 5: Bainbridgeite-(NdCe), $\text{Na}_2\text{Ba}_2\text{NdCe}(\text{CO}_3)_6 \cdot 3\text{H}_2\text{O}$, a new neodymium and cerium-dominant species from Mont Saint-Hilaire, Canada. *European Journal of Mineralogy*, 38, 419–429, <https://doi.org/10.5194/ejm-38-419-2026>.

- Lykova, I., Rowe, R., Teat, S.J., Poirier, G., and Barnes, S. (2026b) Piilonenite-(Nd), $\text{NaNd}(\text{CO}_3)_2 \cdot 3\text{H}_2\text{O}$, a new neodymium-dominant carbonate mineral from Mont Saint-Hilaire, Quebec, Canada. *European Journal of Mineralogy*, 38, 337–345, <https://doi.org/10.5194/ejm-38-337-2026>.
- Ma, C. and Rubin, A.E. (2026) Colomeraite, $\text{NaTi}^{3+}\text{Si}_2\text{O}_6$, a new clinopyroxene mineral from the Colomera iron meteorite. *American Mineralogist*, 111, 1186–1191, <https://doi.org/10.2138/am-2025-10003>.
- Macquistan, M.G., Groat, L.A., Lykova, I., Peterson, R.C., and Rowe, R. (2026) Raudseppite, $\text{Ba}_2\text{Ca}_7(\text{Si}_3\text{O}_8)_2(\text{CO}_3)_2\text{Cl}_2$, a new barium silicate mineral from the Gun Occurrence, the Yukon, Canada. *The Canadian Journal of Mineralogy and Petrology*, 64, 413–425, <https://doi.org/10.3749/2600026>.
- Matýšek, D., Jirásek, J., Majzlan, J., Filip, J., Osovský, M., and Göttlicher, J. (2026) Evaporite minerals from the coal mines of the Czech part of the Upper Silesian Basin, including a new mineral králíkite ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$). *International Journal of Coal Geology*, 104990, <https://doi.org/10.1016/j.coal.2026.104990>.
- Meng, Y.M., Hu, R., Huang, X.W., Yang, Y., Liu, G., and Gu, X. (2026) Wenqingite, $\text{Pb}_3(\text{AsS}_3)_2(\text{Ge}_2\text{S}_6)$, the first thiogermanate and thioarsenite mineral with edge-sharing GeS_4 tetrahedra, from the Wusihe Pb–Zn deposit, Sichuan Province, SW China. *American Mineralogist*, 111, 796–804, <https://doi.org/10.2138/am-2025-9872>.
- Mikuš, T., Vlasáč, J., Majzlan, J., Plášil, J., Sejkora, J., Števkó, M., Petříček, V., and Makovicky, E. (2026) New minerals auropolybasite [$\text{Ag}_{15}\text{AuSb}_2\text{S}_{11}$] and auropearceite [$\text{Ag}_{15}\text{AuAs}_2\text{S}_{11}$]: Implications for the formation of bonanza ores in epithermal systems. *American Mineralogist*, 111, 289–302, <https://doi.org/10.2138/am-2025-9806>.
- Nishio-Hamane, D., Nagashima, M., Mori, Y., Ohnishi, M., Ishizaka, T., and Inoue, S. (2026) Horiite, $\text{Ba}_2\text{Mn}_2\text{Mn}_4\text{Ti}_2(\text{Si}_2\text{O}_7)_2(\text{PO}_4)_2\text{O}_2(\text{OH})_2$, a new mineral of bafertsite group in seidozerite supergroup, from the Taguchi mine, Aichi Prefecture, Japan. *Journal of Mineralogical and Petrological Sciences*, 121, 260301. <https://doi.org/10.2465/jmps.260301>.
- Plášil, J., Škacha, P., Sejkora, J., Škoda, R., Pavlíček, R., and Vrtišková, R. (2026) Extending the mineralogy of U^{6+} (VII.): Kristekite, $[\text{Cu}_2(\text{H}_2\text{O})_4(\text{UO}_2)(\text{SeO}_3)_2] \cdot 4\text{H}_2\text{O}$, a new mineral from Příbram, Czech Republic. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10251>.
- Sejkora, J., Velebil, D., Biagioni, C., Dolníček, Z., and Hyršl, J. (2026) Argentotennantite-(Fe), $\text{Ag}_6(\text{Cu}_4\text{Fe}_2)\text{As}_4\text{S}_{13}$, a new member of the tetrahedrite group from the San Genaro mine, Peru: occurrence and crystal structure. *European Journal of Mineralogy*, 38, 325–336, <https://doi.org/10.5194/ejm-38-325-2026>.
- Siiidra, O.I., Nazarchuk, E.V., Pautov, L.A., Borisov, A.S., Zaitsev, A.N., and Avdontseva, E.Y. (2026) Karltdimarite, $\text{Cu}_6\text{O}_4(\text{PO}_4)_2(\text{SO}_4)_2$, the first copper phosphate-sulfate mineral from the Tolbachik volcano, Kamchatka, Russia. *American Mineralogist*, 111, 989–996, <https://doi.org/10.2138/am-2025-9994>.
- Skřápková, L., Cempírek, J., Škoda, R., Holá, M., Novotný, F., and Bosi, F. (2026) Liddicoatite, $\text{Ca}(\text{Li}_2\text{Al})\text{Al}_6(\text{Si}_6\text{O}_{18})(\text{BO}_3)_3(\text{OH})_3\text{OH}$, a rare, long-anticipated OH-dominant species of the tourmaline supergroup. *American Mineralogist*, in press, <https://doi.org/10.2138/am-2026-10327>.
- Strel'nikov, M.V., Britvin, S.N., Yapaskurt, V.O., Gekimyan, V.M., Yanson, S.Yu., Agakhanov, A.A., Plechov, P.Yu., and Pekov, I.V. (2026) Sulfopadmaite, PdBiS , a new mineral from the Srednyaya Padma deposit, Karelia, Russia and the novel isomorphous series padmaite–sulfopadmaite. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10226>.
- Tian, Y., Li, G., Sun, N., Liu, M., Mao, J., Dong, Y., Liu, P., Jian, W., Yao, W., Wang, X. and Ye, H. (2026) Fengruite, $[\text{Ag}_6\text{Sb}_2\text{S}_7][\text{Ag}_6\text{CuS}_2\text{Te}_2]$, a new Ag–Sb–Te sulfosalt mineral from the Haopinggou Ag–Pb–Zn–Au deposit, eastern Qinling, China. *European Journal of Mineralogy*, 38, 519–530, <https://doi.org/10.5194/ejm-38-519-2026>.
- Topa, D., Makovicky, E., Putz, H., and Zagler, G. (2026a) Lopatkaite, a new mineral from Taylor Pit, Madoc, Ontario, Canada. *European Journal of Mineralogy*, 38, 217–229, <https://doi.org/10.5194/ejm-38-217-2026>.
- Topa, D., Makovicky, E., Putz, H., Paar, W.H., and Zagler, G. (2026b) Erzwiesite, $\text{Ag}_3\text{Pb}_{12}\text{Bi}_6\text{S}_{40}$, the natural orthorhombic $N = 8$ member of the lillianite homologous series. *European Journal of Mineralogy*, 38, 237–247, <https://doi.org/10.5194/ejm-38-237-2026>.
- Uher, P., Bačík, P., Rybníková, O., Wildner, M., Miglierini, M., Libowitzky, E., Skřápková, L., Škoda, R., Vaculovič, T., Ondrejka, M., and Voleková, B. (2026) Modraite, $\text{Ca}_{10}\text{Fe}^{2+}\text{Al}_4(\text{Al}_2\text{Fe}^{2+})(\text{SiO}_4)_{10}(\text{Si}_2\text{O}_7)_4\text{O}(\text{OH})_8$, a new vesuvianite-group mineral from the Modra skarn, Malé Karpaty Mountains, Slovakia. *American Mineralogist*, in press, <https://doi.org/10.2138/am-2025-10007>.
- Vrana, S., Rieder, M., and Gunter, M.E. (1992) Hejtmánite, a manganese-dominant analogue of bafertsite, a new mineral. *European Journal of Mineralogy*, 4, 35–44, <https://doi.org/10.1127/ejm/4/1/0035>.
- Xue, Y., Sun, N., Li, G., Hao, J., Liu, P., Song, W., Li, X., Shen, J., Yang, L., Wang, Z., and Meng, W. (2026) The first barium-HREE fluorocarbonate new mineral bayanoboite-(Y), $\text{Ba}_2\text{Y}(\text{CO}_3)_2\text{F}_3$, from Bayan Obo deposit, Inner Mongolia, China. *American Mineralogist*, 111, 1361–1374, <https://doi.org/10.2138/am-2025-10008>.
- Yang, B., Xue, Y., Yang, L., Sun, N., Li, G., Yu, J., Yan, G., Liu, J., Zhao, Y., Meng, W., and Chen, Z. (2026a) Xianhuaite-(Ce), $\text{K}_2\text{CeNb}_5\text{O}_{15}$, a new niobium mineral from the Bayan Obo deposit, China. *European Journal of Mineralogy*, 38, 449–459, <https://doi.org/10.5194/ejm-38-449-2026>.
- Yang, H., Kampf, A.R., Gu, X., Lazar, W., Gibbs, R.B., and Downs, R.T. (2026b) Domitrovicite, $\text{Zn}(\text{C}_2\text{H}_3\text{O}_3)_2(\text{H}_2\text{O})_2$, and puschrigeite, $\text{Mn}(\text{C}_2\text{H}_3\text{O}_3)_2(\text{H}_2\text{O})_2$, two new glycolate minerals from the Santa Catalina Mountains, Tucson, Arizona, USA. *The Canadian Journal of Mineralogy and Petrology*, 64, 275–294, <https://doi.org/10.3749/2500065>.
- Yang, H., Gu, X., Fan, G., Kampf, A.R., Thorne, B., Gibbs, R.B., and Downs, R.T. (2026c) Shenganfuite, $\text{PbTe}^{4+}_3\text{O}_5(\text{OH})\text{Cl}_3(\text{H}_2\text{O})$, a new lead-tellurite mineral from the Moctezuma Mine, Sonora, Mexico. *The Canadian Journal of Mineralogy and Petrology*, 64, 173–183, <https://doi.org/10.3749/2500036>.
- Zepek-Pogudz, S., Gołębiowska, B., Rutkowski, B., Jeleń, P., Nejbert, K., Städtnicka, K.M., and Pieczka, A. (2026) Nioboixiolite-(Fe^{2+}), $(\text{Nb}_{2/3}\text{Fe}^{2+}_{1/3})\text{O}_2$, a new mineral of the ixiolite group from Jordanów Śląski, Lower Silesia, Poland. *Mineralogical Magazine*, in press, <https://doi.org/10.1180/mgm.2026.10244>.