

New minerals recently approved by the Commission on New Minerals and Mineral Names : International Mineralogical Association

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New minerals recently approved by the Commission on New Minerals and Mineral Names International Mineralogical Association

The information given here is provided by the Commission on New Minerals and Mineral Names, I. M. A. for comparative purposes and as a service to mineralogists working on new species.

Each mineral is described in the following format:

IMA No. (any relationship to other minerals)
Chemical Formula
Crystal system, space group
unit cell parameters
Colour; lustre; diaphaneity
Optical properties
Strongest lines in the X-ray powder diffraction pattern

The names of these approved species are considered confidential information until the authors have published their descriptions or released information themselves.

No other information will be released by the commission

J.A. Mandarino, Chairman Emeritus, and J.D. Grice, Chairman
Commission on New Minerals and Mineral Names, International Mineralogical Association

1997 Proposals

IMA No. 97-001

Chemically related to paulkerrite
 $(\text{Bi,Pb})_2\text{Fe}(\text{O,OH})_3\text{PO}_4$
Monoclinic: C2/m
a 12.278, b 3.815, c 6.899 Å, β 111.14°.
Black to dark brown; vitreous to adamantine;
opaque to translucent.
Biaxial (-), α 2.06, β 2.15(calc), γ 2.19,
2V(meas.) 70°.
5.726 (54), 3.372 (77), 3.322 (37), 3.217 (46),
3.011 (100), 2.863 (34), 2.750 (62).

a 7.116, c 4.815 Å.
Creamy-white; earthy; earthy.
Probably uniaxial (-), n 1.67.
3.479 (40), 2.862 (55), 2.654 (100), 2.231 (15),
2.129 (20), 1.920 (35), 1.644 (20).

IMA No. 97-002

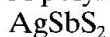
The boron-dominant analogue of gehlenite
(melilite group)
 $\text{Ca}_2\text{B}_2\text{SiO}_7$
Tetragonal: P42₁m

IMA No. 97-003

The Ti-dominant analogue of nenadkevichite
 $\text{NaK}_2(\text{Ti,Nb})_2\text{Si}_4\text{O}_{12}(\text{O,OH})_2 \cdot 2\text{H}_2\text{O}$
Monoclinic: C2/m
a 14.39, b 13.900, c 7.825 Å, β 117.6°.
Colourless; vitreous; transparent to trans-
lucent.
Biaxial (+), α 1.667, β 1.677, γ 1.802,
2V(meas.) 32°, 2V(calc.) 33°.
6.94 (61), 6.39 (43B), 3.186 (100), 3.100 (96),
2.600 (28), 2.586 (28), 2.489 (24).

IMA No. 97-004

A polymorph of miargyrite



Cubic: Fm3m

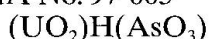
a 5.650

Greyish black; metallic; opaque.

In reflected light: grey. R: (34.5%) 470 nm,
(33.8%) 546 nm, (32.8%) 589 nm, (28.7%)
650 nm.

3.26 (9), 2.83 (10), 1.998 (8), 1.703 (6),
1.630 (5), 1.296 (2), 1.263 (3).

IMA No. 97-005



Tetragonal: space group unknown

a 11.00, c 15.96 Å

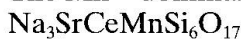
Yellow; dull; translucent.

Uniaxial (-), ω 1.84, ε 1.75.

5.58 (8), 4.95 (10), 4.40 (6), 3.33 (8), 3.03 (6),
2.91 (5).

IMA No. 97-007

The Mn²⁺-dominant analogue of nordite-(Ce)



Orthorhombic: Pcca

a 14.449, b 5.187, c 19.849 Å

Colourless, pale-brownish, brown; vitreous;
transparent.

Biaxial (-), α 1.623, β 1.636, γ 1.642,
2V(meas.) 60°, 2V(calc.) 68°.

7.22 (38), 4.215 (100), 3.326 (67), 2.965 (83),
2.875 (55), 2.597 (54), 2.443 (35).

IMA No. 97-008

The Fe²⁺-dominant analogue of nordite-(Ce)



Orthorhombic: Pcca

a 14.460, b 5.187, c 19.848 Å

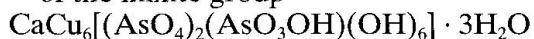
Colourless or light coffee-colour; vitreous;
transparent.

Biaxial (-), α 1.623, β 1.636, γ 1.642,
2V(meas.) 60°, 2V(calc.) 68°.

7.22 (41), 4.216 (100), 3.325 (67), 2.964 (73),
2.879 (62), 2.595 (46), 2.444 (31).

IMA No. 97-009

The calcium- and arsenate-dominant member
of the mixite group



Hexagonal: P6₃/m

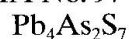
a 13.571, c 5.880 Å

Pale green; vitreous; transparent.

Uniaxial (+), ω 1.688, ε 1.765.

11.64 (100), 4.431 (41), 3.387 (17), 3.254 (22),
2.9347 (42), 2.6932 (29), 2.5624 (30).

IMA No. 97-010



Orthorhombic: Pba2 or Pbam

a 15.179, b 38.117, c 4.0428 Å

Silvery lead grey; metallic; opaque.

In reflected light: white with a greenish tint,
distinct anisotropism (dark grey to
greenish grey, weak birefractance, weak
pleochroism. R_{min.} & R_{max.}: (33.8, 34.0%)
470 nm, (31.8, 31.9%) 546 nm, (31.2,
31.3%) 589 nm, (30.4, 30.4%) 650 nm.

4.462 (40), 3.699 (37), 3.392 (100), 2.817 (45),
2.735 (31), 2.156 (25), 2.150 (22).

IMA No. 97-012



Monoclinic: C2

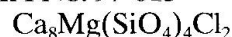
a 8.9252, b 6.1427, c 7.352 Å, β 115.25°

Light brownish to brownish pink, orange-
brown; vitreous; transparent.

Biaxial (sign unknown), n 1.76 parallel to
fibre, n 1.70 perpendicular to fibre.

4.914 (58), 3.376 (65), 3.164 (100), 3.084 (61),
2.945 (72), 2.687 (53), 2.522 (84).

IMA No. 97-013



Cubic: Fd $\bar{3}$

a 15.0850 Å

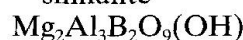
Orange brown to amber; vitreous;
transparent.

Isotropic, n 1.676.

2.901 (40), 2.666 (100), 2.549 (30), 1.9637 (30),
1.8845 (30), 1.7774 (30), 1.5400 (50),
1.4585 (30).

IMA No. 97-014

Chemically and structurally related to
sinhalite



Monoclinic: P2₁/c

a 7.49, b 4.33, c 9.85 Å, β 110.7°

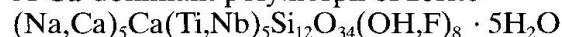
Colourless; vitreous; transparent.

Biaxial (-), α 1.691, β 1.713, γ 1.730,
2V(meas.) 80.0°, 2V(calc.) 82°.

3.21 (40), 2.61 (40), 2.14 (100), 2.102 (60),
1.625 (100), 1.607 (40), 1.399 (40).

IMA No. 97-015

A Ca-dominant polymorph of zorite



Orthorhombic: C222

a 7.024, b 23.155, c 6.953 Å

Pale brown, brown, orange-yellow; vitreous;
transparent to translucent.

Biaxial (+), α 1.599, β 1.610, γ 1.696,
2V(meas.) 38°, 2V(calc.) 41°.

11.564 (100), 6.932 (90), 5.258 (40), 4.446 (40),
3.052 (75), 2.977 (70), 2.582 (40).

IMA No. 97-017

A monoclinic polymorph of cervantite
 Sb_2O_4 ($\text{Sb}^{3+}\text{Sb}^{5+}\text{O}_4$, β -phase)
Monoclinic: $C2/c$
a 12.061, b 4.836, c 5.383 Å, β 104.60°
Colourless; vitreous; transparent.
Biaxial (sign unknown), α' 1.72, γ' 2.10.
3.244 (VS), 2.920 (M), 2.877 (S), 1.619 (M).

IMA No. 97-018

A member of the milarite group
 $\text{K}(\text{Ca}, \text{Mn}, \text{Na})_2(\text{K}_{2-x}\square_x)_2\text{Zn}_3\text{Si}_{12}\text{O}_{30}$
Hexagonal: $P6/mcc$
a 10.505, c 14.185 Å
Colourless, white; vitreous; transparent to
translucent.
Uniaxial (+), ω 1.561, ε 1.562
7.11 (35), 3.830 (100), 3.345 (60), 3.304 (40),
2.940 (50), 2.795 (85), 2.627 (35).

IMA No. 97-019

The zinc-dominant member of the manasseite
group
 $\text{Zn}_4\text{Al}_2(\text{OH})_{12}(\text{CO}_3) \cdot 3\text{H}_2\text{O}$
Hexagonal: $P6_3/mmc$
a 3.0725, c 15.1135 Å
White; vitreous; transparent.
Optical properties could not be measured.
7.51 (vs), 3.794 (m), 2.511 (mw), 2.175 (mw),
1.830 (mw), 1.542 (ms), 1.539 (ms).

IMA No. 97-021

HgBi_2S_4
Monoclinic: $C2/m$
a 14.164, b 4.053, c 13.967 Å, β 118.28°
Grey-black; metallic; opaque.
In reflected light: creamy-white, distinct
anisotropism, low birefractance, non-
pleochroic. R_1 & R_2 : (35.7, 37.8%) 470 nm,
(35.4, 37.5%) 546 nm, (34.9, 37.0%) 589 nm,
(33.9, 35.8%) 650 nm.
3.86 (m), 3.55 (m), 3.05 (S), 2.914 (mS),
2.865 (mS), 2.644 (m), 1.913 (m), 1.805 (m).

IMA No. 97-022

The cadmium-dominant analogue of 97-023
 $(\text{Cd}, \text{Ca}, \text{Mn})\text{KCu}_5(\text{AsO}_4)_4[\text{As}(\text{OH})_2\text{O}_2](\text{H}_2\text{O})_2$
Monoclinic: $P2_1/m$
a 9.8102, b 10.0424, c 9.9788 Å, β 101.686°
Electric blue; vitreous; transparent.
Biaxial (-), α 1.720, β 1.749, γ 1.757,
2V(meas.) 50°, 2V(calc.) 55°.
9.64 (100), 4.46 (40), 3.145 (50), 3.048 (40),
2.698 (40).

IMA No. 97-023

The calcium-dominant analogue of 97-022
 $(\text{Ca}, \text{Cd}, \text{Mn})\text{KCu}_5(\text{AsO}_4)_4[\text{As}(\text{OH})_2\text{O}_2](\text{H}_2\text{O})_2$
Monoclinic: $P2_1/m$
a 9.8102, b 10.0424, c 9.9788 Å, β 101.686°
Electric blue; vitreous; transparent.
Biaxial (-), α 1.713, β 1.743, γ 1.749,
2V(meas.) 50°, 2V(calc.) 48°.
9.64 (100), 4.46 (40), 3.145 (50), 3.048 (40),
2.698 (40).

IMA No. 97-024

The cadmium-dominant analogue of
campigliaite
 $\text{Cu}_4\text{Cd}(\text{SO}_4)_2(\text{OH})_6 \cdot 4\text{H}_2\text{O}$
Monoclinic: $P2_1/m$
a 5.543, b 21.995, c 6.079 Å, β 92.04°
Bluish-green; vitreous; transparent.
Biaxial (-), α 1.619, β 1.642, γ 1.661,
2V(meas.) 66°, 2V(calc.) 83°.
11.02 (90), 5.496 (100), 5.322 (25), 4.079 (50),
3.437 (30), 3.243 (40), 2.470 (30).

IMA No. 97-025

$\text{UO}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
Hexagonal: space group unknown
a 15.79, c 23.93 Å
Canary yellow; silky; translucent.
Uniaxial (+), ω 1.588, ε 1.612.
7.86 (47), 6.91 (55), 6.56 (77), 4.76 (40),
4.34 (36), 3.39 (33), 3.056 (100).

IMA No. 97-026

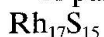
The boron-dominant analogue of vesuvianite
 $\text{Ca}_{19}(\text{Al}, \text{Mg}, \text{Fe}, \text{Ti})_{13}(\text{B}, \text{Al}, \square)_5\text{Si}_{18}\text{O}_{68}$
(O, OH, F)₁₀
Tetragonal: $P4/nnc$
a 15.752, c 11.717 Å
Dark green; vitreous; translucent.
Uniaxial (+), ω 1.721, ε 1.725.
2.776 (100), 2.617 (61), 2.592 (43), 2.491 (61),
2.121 (20), 1.660 (26), 1.640 (23).

IMA No. 97-027

The cobalt-dominant analogue of lothar
meyerite
 $\text{Ca}(\text{Co}, \text{Fe}, \text{Ni})_2(\text{AsO}_4)_2(\text{OH}, \text{H}_2\text{O})_2$
Monoclinic: $C2/m$
a 9.024, b 6.230, c 7.421 Å, β 115.15°.
Brown; vitreous; translucent.
Biaxial (+), α 1.78, β 1.79, γ 1.85(calc.),
2V(meas.) 48°.
4.955 (38), 3.398 (85), 3.188 (28), 3.115 (33),
2.972 (100), 2.709 (28), 2.545 (34).

IMA No. 97-029

The rhodium- and sulfur-dominant analogue of palladseite



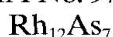
Cubic: $\text{Pm}\bar{3}\text{m}$, $\text{P}\bar{4}3\text{m}$ or $\text{P}432$

a 10.024 Å

Colour unknown; metallic; opaque.

In reflected light: grey with slight bluish tint, isotropic. R : (38.6%) 480 nm, (39.0%) 540 nm, (39.1%) 580 nm, (38.8%) 660 nm. 3.33 (2), 3.17 (7), 3.02 (9), 2.68 (5), 2.24 (9), 1.931 (8), 1.774 (10).

IMA No. 97-030



Hexagonal: $\text{P}6_3/\text{m}$

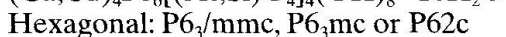
a 9.31, c 3.64 Å

Colour unknown; metallic; opaque.

In reflected light: brownish-grey, weak anisotropism from grey to brownish-grey, weak bireflectance, nonpleochroic. R_{min} & R_{max} : (44.5, 47.8%) 480 nm, (44.7, 48.3%) 540 nm, (46.4, 49.2%) 580 nm, (48.6, 51.3%) 660 nm. 2.33 (4), 2.03 (2), 1.852 (9), 1.767 (6), 1.755 (10), 1.549 (8).

IMA No. 97-032

The Fe^{2+} -dominant analogue of wallkilldellite



Hexagonal: $\text{P}6_3/\text{mmc}$, $\text{P}6_3/\text{mc}$ or $\text{P}62\text{c}$

a 6.548, c 23.21 Å

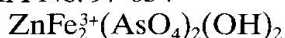
Brown-yellow; vitreous to resinous;

translucent.

Uniaxial (-), ω 1.750, ε could not be determined.

11.6 (100), 5.670 (80), 3.275 (70), 2.850 (10), 2.760 (15), 2.547 (10), 1.641 (25).

IMA No. 97-034



Monoclinic: $\text{P}2_1/\text{n}$

a 6.629, b 7.616, c 7.379 Å, β 91.79°

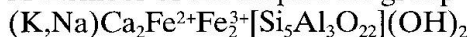
Dark green; adamantine; translucent.

Biaxial (sign unknown), n 1.94, mineral reacts with liquids of $n > 1.9$.

3.385 (100), 3.315 (78), 2.939 (47), 2.839 (28), 2.381 (29), 2.331 (29), 1.652 (32), 1.621 (34).

IMA No. 97-035

A member of the amphibole group



Monoclinic: $\text{C}2/\text{m}$

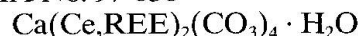
a 9.94, b 18.08, c 5.38 Å, β 105.5°

Black; vitreous; transparent.

Biaxial (-), α 1.696, β not determined, γ 1.715, $2V(\text{meas.})$ 45°.

8.44 (90), 3.405 (25), 3.285 (30), 3.145 (100), 2.823 (26), 2.722 (52), 2.606 (27), 2.579 (25).

IMA No. 97-036



Triclinic: $\text{P}\bar{1}$

a 6.397, b 6.389, c 12.383 Å,

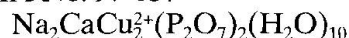
α 96.58°, β 100.85°, γ 100.46°

Colourless to white; vitreous; translucent.

Biaxial (-), α 1.635, β 1.725, γ 1.750, $2V(\text{calc.})$ 53°.

5.901 (59), 5.049 (72), 4.695 (37), 4.468 (36), 4.006 (110), 3.899 (45), 3.125 (39), 3.0051 (448).

IMA No. 97-037



Orthorhombic: $\text{Fdd}2$

a 11.938, b 32.854, c 11.017 Å

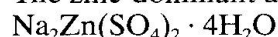
Blue-green; vitreous; transparent.

Biaxial (+), α 1.508, β 1.511, γ 1.517, $2V(\text{meas.})$ 76.2°, $2V(\text{calc.})$ 71°.

8.23 (30), 6.52 (100), 4.05 (40), 3.255 (40), 2.924 (40), 2.807 (25), 2.614 (20).

IMA No. 97-041

The zinc-dominant analogue of blödite



Monoclinic: $\text{P}2_1/\text{a}$

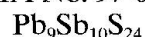
a 11.077, b 8.249, c 5.532 Å, β 100.18°.

Colourless; vitreous; transparent.

Biaxial (-), α 1.507, β 1.512, γ 1.516 (all for synthetic material).

4.550 (58), 4.245 (32), 3.325 (25), 3.289 (100), 3.262 (35), 3.245 (25), 2.631 (27).

IMA No. 97-042



Triclinic: $\text{P}\bar{1}$

a 24.789, b 8.26, c 21.787 Å, α 90.53°,

β 99.58°, γ 94.78°.

Black; metallic; opaque.

In reflected light: black, low anisotropism, low bireflectance, nonpleochroic. R_1 & R_2 : (38.95, 37.64%) 470 nm, (42.35, 38.26%) 546 nm, (41.67, 37.63%) 589 nm, (37.43, 36.53%) 650 nm.

3.47 (vs), 3.35 (ms), 3.24 (ms), 2.986 (s), 2.947 (s), 2.229 (ms).

IMA No. 97-043



Orthorhombic: Pnma

a 8.8213, b 3.7725, c 14.0053 Å.

Greyish black; metallic; opaque.

In reflected light: white, weak anisotropism, weak bireflectance, nonpleochroic.

R_1 & R_2 : (33.9, 36.0%) 470 nm, (31.3, 32.9%) 546 nm, (30.0, 31.4%) 589 nm, (28.8, 29.9%) 650 nm.
4.128 (100), 3.730 (30), 3.1085 (28), 2.8081 (51), 2.7421 (41), 2.6692 (51), 1.9335 (54).

IMA No. 97-044

A member of the ilmenite group
(Mg,Fe)SiO₃
Hexagonal (trigonal): $R\bar{3}$
a 4.78, c 13.6 Å.
Colourless; vitreous; transparent.
Uniaxial, no other data could be determined.
3.509 (61), 2.616 (100), 2.366 (52), 2.097 (45), 1.755 (45), 1.636 (65), 1.366 (50).

IMA No. 97-045

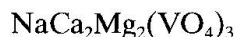
Na₂LiAlF₆
Monoclinic: P2₁ or P2₁/m
a 7.5006, b 7.474, c 7.503 Å, β 90.847°.
Pale buff-cream; somewhat greasy; transparent to translucent.
Almost isotropic (biref. = 0.0009), biaxial
n 1.359, 2V(meas.) up to 27°.
4.33 (100), 2.65 (60), 2.25 (70), 2.18 (50), 2.158 (40), 1.877 (90).

IMA No. 97-047

(Na,Y)(Y,REE)(HCO₃)(OH)₂ · 5H₂O
Monoclinic: P2 (pseudo-tetragonal)
a 4.566, b 13.018, c 4.566 Å, β 90.15°.
White to yellow; vitreous; translucent to transparent.
Uniaxial (-), ω 1.540, ε 1.40, 2V(meas.) 0–5°.
12.97 (10), 6.52 (3), 4.57 (3), 4.32 (5), 3.223(3), 3.133 (5), 2.016 (4).

IMA No. 97-048

The magnesium-dominant analogue of palenzonaite

Cubic: Ia $\bar{3}$ d

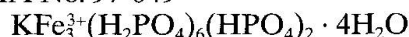
a 12.427 Å

Red; adamantine; transparent.

Isotropic, n 1.94.

3.108 (44), 2.779 (100), 2.652 (20), 2.535 (39), 1.723 (26), 1.662 (40).

IMA No. 97-049



Monoclinic: C2/c

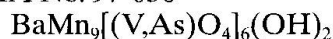
a 16.95, b 9.59, c 17.57 Å, β 90.85°.

White; vitreous; translucent.

Biaxial (-), α 1.557, β 1.598, γ 1.602,
2V(meas.) 32°, 2V(calc.) 34°.

8.83 (10), 7.60 (4), 3.75 (10), 3.30 (4), 3.23 (5), 3.11 (4), 3.02 (9).

IMA No. 97-050

Cubic: Pa $\bar{3}$

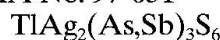
a 12.845 Å

Dark red; adamantine; transparent.

Isotropic, n > 2.0.

3.01 (87), 2.790 (100), 2.608 (100), 2.332 (44), 2.134 (53), 1.510 (99), 1.0020 (35).

IMA No. 97-051

Orthorhombic: Pnmb or P2₁nb

a 12.479, b 15.522, c 5.719 Å.

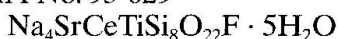
Dark grey; metallic; opaque.

In reflected light: pure white, extremely weak anisotropism, no birefractance, non-pleochroic. $R_{\min.}$ & $R_{\max.}$: (31.43, 33.43%)
470 nm, (28.31, 30.52%) 546 nm,
(27.10, 29.11%) 589 nm, (25.57, 27.44%)
650 nm.

3.655 (16), 3.363 (50), 3.290 (23), 3.210 (26), 3.118 (27), 2.822 (100), 2.540 (17), 2.070 (15).

Proposals from previous years approved in 1997

IMA No. 93-029



Monoclinic: P2/a (?)

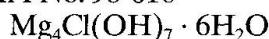
a 23.88, b 14.40, c 7.238 Å, β 91.0°.

Yellow. pink-yellow or cream; vitreous and silky; translucent.

Biaxial (-), α 1.542, β 1.569, γ 1.571,
2V(meas.) 28°, 2V(calc.) 30°.

12.36 (100), 3.232 (13), 3.190 (29), 3.108 (29), 3.087 (21), 3.058 (13), 2.708 (12).

IMA No. 96-016

Orthorhombic: Pcmm, Pcm2₁, or Pc2m

a 11.215, b 3.124, c 19.21 Å.

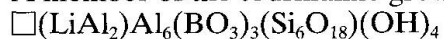
Yellowish-white; vitreous or pearly; translucent.

Biaxial (-), α 1.532, β ~ γ 1.562, 2V(meas.) ≤ 5°.

11.41 (29), 9.78 (46), 9.60 (38), 4.25 (20), 3.498 (100).

IMA No. 96-018

A member of the tourmaline group



Hexagonal (trigonal): R3m

a 15.770, c 7.085 Å.

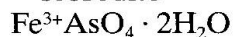
Pink; vitreous; translucent.

Uniaxial (-), ω 1.645, ε 1.624.

4.181 (58), 3.950 (100), 3.434 (52), 2.924 (56),
2.552 (93), 1.898 (72).

IMA No. 96-061

An hexagonal or trigonal dimorph of scorodite



Hexagonal: P-c- (extinction symbol)

a 8.9327, c 9.9391 Å.

White to light yellow-brown; vitreous;
translucent.

Uniaxial (sign unknown), ω and $\varepsilon > 1.72$.

4.973 (61), 4.184 (44), 4.076 (100), 3.053 (67),
2.806 (68), 2.661 (59), 2.520 (54), 2.2891 (44).