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)

<table>
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<tr>
<th>Chemical Formula</th>
<th>Crystal system, space group</th>
<th>unit cell parameters</th>
<th>Colour; lustre; diaephaneity.</th>
<th>Optical properties.</th>
<th>Strongest lines in the X-ray powder diffraction pattern.</th>
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<tbody>
<tr>
<td>Fe₂Z(PO₄)₄·H₂O</td>
<td>Monoclinic: P2₁/c</td>
<td>a 9.12, b 5.42, c 19.17 Å</td>
<td>Pale yellowish white; vitreous to dull; transparent.</td>
<td>Bisnald (+), α 1.645, β 1.692, γ 1.652, 2V(meas.) 0°, 2V(calc.) 0°. 9.58 (75), 4.372 (65), 4.092 (60), 3.60 (100), 2.640 (70).</td>
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<tr>
<td>Bi₂O(OH)₂SO₄</td>
<td>Monoclinic: P2₁/c</td>
<td>a 7.700, b 13.839, c 5.606 Å</td>
<td>Colours;智造; translucent.</td>
<td>Bisnald, indices of refraction calculated from reflectance data at 589nm: R 1.91, R 1.99. 3.646 (60), 3.466 (60), 3.206 (100), 2.924 (70), 2.782 (50), 1.984 (60).</td>
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<tr>
<td>In reflected light; white, distinct monominer; distinct bisreflact, pleochroic white to greyish white.</td>
<td>Bisnald (+), α 1.542, β 1.545, γ 1.597, 2V(meas.) 34°, 2V(calc.) 30°. 9.02 (100), 4.90 (40), 4.48 (80), 4.00 (40), 3.53 (40), 3.52 (50), 3.01 (60), 2.689 (60).</td>
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</tbody>
</table>

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
Commission on New Minerals and Mineral Names
International Mineralogical Association

1992 PROPOSALS

| IMA No. 92-006 | The nickel- analogue of hydromagnesite. Ni₂CO₃·(OH)₂·4H₂O Monoclinic: P2₁/c | a 10.05, b 8.75, c 8.32 Å | Bluish-green; vitreous; transparent. Bisnald (sign unknown), α 1.630, γ 1.640, 2V unknown. 6.30 (5), 5.75 (10), 4.36 (4), 4.14 (3), 2.871 (40), 2.452 (20), 2.120 (3). |
| IMA No. 92-011 | A triclinic polymorph of 92-011. Ca₂B₆O₈(OH)₂·3H₂O Triclinic: P1 | a 12.759, b 13.060, c 9.733 Å | Colourless to very pale yellow; vitreous; translucent to transparent. Bisnald (+), α 1.537, β 1.548, γ 1.570, 2V(meas.) 77°, 2V(calc.) 71°. 9.21 (70), 7.69 (100), 5.74 (60), 4.63 (40), 3.845 (35), 2.199 (30b). |
| IMA No. 92-011 | A monoclinic polymorph of 92-010. Ca₂B₆O₈(OH)₂·3H₂O Monoclinic: P2₁ | a 19.88, b 9.715, c 17.551 Å | Colourless to very pale yellow; vitreous; translucent to transparent. Bisnald (+), α 1.542, β 1.545, γ 1.565, 2V(meas.) 47°, 2V(calc.) 43°. 9.03 (60), 8.56 (100), 6.62 (70), 6.14 (30b), 5.12 (30), 4.09 (30), 3.768 (30), 3.493 (30). |
IMA No. 92-012
Ca2(Ce(Fe,Si)O3)(OH)
Orthorhombic: Cmcm
a 9.398 b 5.139 c 10.353
Colourless; vitreous; transparent.
Lustre: glassy, pearly; transparent.

IMA No. 92-013
The phosphate analogue of prehnite and smithsonite.
H2O6(OH)2PO4
Triklinal: P2
a 9.798 b 7.250 c 6.866
White to pale pink, sometimes brown; vitreous; translucent.

IMA No. 92-014
Na2Ca2(MgFe+2)3Al(AsO4)2
Orthorhombic: P21212
a 11.970 b 5.693 c 18.00
Pale yellow, yellow, pale brown; adamantine; transparent.

IMA No. 92-015
Fe(OH)2(SO4)2
Hexagonal: h-R3
a 8.14 c 21.99 A

IMA No. 92-017
Cu2O0F2(CeF2O3)(P2O5)2
Cubic: Ia3d
a 12.162 A
Black; adamantine; opaque.

IMA No. 92-018
Cu2N2(OH)2
Tetragonal: 4/a
a 3.135 c 33.882 A
Creamy yellow; vitreous to adamantine; translucent.

IMA No. 92-019
Cu2H6
Monoclinic: P2
a 8.392 b 5.198 c 9.558 B 98.48'
Colourless to greyish-white; vitreous to waxy; transparent.

IMA No. 92-020
Cu2(CeO)(Fe3O4)(SiO4)2
Monoclinic: C221
a 9.762 c 18.888 B 102.25'

IMA No. 92-024
Cu2O6
Tetragonal: P4/nnm
a 8.511 c 5.823 A
Black; metallic; opaque.

IMA No. 92-025
Cu2TeO4
Cubic: Ia3d, space group unknown
a 9.553 A
Emerald green; adamantine; transparent to translucent.

IMA No. 92-026
The -Hf polytype of 92-027.

IMA No. 92-027
The -Hf polytype of 92-026.

IMA No. 92-028
The -Hf polytype of 92-026.
NEW MINERALS RECENTLY APPROVED

IMA No. 92-039

Cu(Fe,Zn)2(C2O4)2W6O45

Cubic; space group unknown.

a = 10.675 Å

Mesoscopic colour unknown; metallic; opaque.

In reflected light: pale yellowish pink, no anisotropism, no birefringence, nonslochoic.

Ls: (23.2 %)5646m, (22.7 %)5446m, (24.0 %)5856m, (23.8 %)5606m.

IMA No. 92-040

Na2ZnSi6O12

Orthorhombic: Fddd

a = 10.21 b = 39.88 c = 10.30 Å

Colourless to light mallow; vitreous; transparent.

Biaxial (+), nα = 1.520, nβ = 1.524, 2V(mean) 61°, 2V(calc.) 60°.

IMA No. 92-041

The thallium-analogue of jarosite.

[Tl2]Fe2(SO4)6(OH)6

Hexagonal (trigonal): R3m

a = 7.330 c = 17.6631 Å

Gold yellow; adamantine; transparent.

Uniaxial (-), ω = 1.822, ε = 1.768.

3.974 (37), 3.966 (34), 3.912 (100), 2.9877 (22), 2.5773 (23), 1.9912 (29), 1.8329 (23).

IMA No. 92-043

Ca[U2](SO4)2(OH)6

Orthorhombic: P-landscape, space group unknown.

a = 8.73 b = 17.09 c = 15.72 Å

Sulphur yellow; vitreous; translucent.

Biaxial (+), nα = 1.617 (calculated), nβ = 1.758, 2V(mean) 68°.

IMA No. 92-045

The phosphate-analogue of segnitlite.

PbFe2(SO4)(OH)12O4

Hexagonal (trigonal): R3m

a = 7.525 c = 16.000 Å

Cream to brownish yellow to yellowish green; adamantine; translucent.

Uniaxial (-), ε = 1.955, ω = 1.935.

5.96 (50), 3.67 (60), 3.07 (60), 2.538 (50), 2.257 (50), 1.979 (50).

IMA No. 92-046

AlFe2(OH)4

Tetragonal: P4/m

a = 7.715 c = 3.648 Å

Colourless; vitreous; transparent.

Uniaxial (-), ω = 1.427, ε = 1.403.

5.67 (100), 2.439 (72), 2.027 (70), 1.775 (78), 1.725 (85), 1.306 (70).

IMA No. 92-048

Na4REE(CO3)3 with Ce the dominant REE

Monoclinic: P21

a = 20.84 b = 6.374 c = 10.578 Å β = 120.45°

Grey with slight pinkish tint; vitreous; translucent.

Biaxial (+ or -), nα = 1.623, nβ = 1.649, 2V(mean) 90°, 2V(calc.) 89°.

IMA No. 92-050

The magnesio-analogue of damoherite.

(Mg5Ti2)(Al5B6O18)(OH)B x = 3

Orthorhombic: Pnma

a = 12.02 b = 20.22 c = 4.722 Å

Pink to red; vitreous; transparent.

Biaxial (+), αα = 1.678, β = 1.700, γ = 1.701, 2V(mean) 38°, 2V(calc.) 24°.

IMA No. 90-066

Fe5O8(OH)3(SO4) where 6 - y = 2z and 2.6 ≤ z ≤ 3.5

Tetragonal: probably P4/m

a = 10.66 c = 6.04 Å

Brownish yellow; dull; translucent.

Optical properties unknown.

IMA No. 90-046

The uranium-analogue of polyuranite(Y).

(U,Y)2(UNb,Ta)O7

Orthorhombic: Pbnm

a = 14.48 b = 5.559 c = 5.223 Å

Brown-red; adamantine; opaque.

In reflected light: pale grey with bluish tints; no anisotropism, birefringence, or pleochroism.

IMA No. 91-036

Fe5O8(OC)

Orthorhombic: Pnma

a = 6.31 b = 9.20 c = 7.10 Å

Mesoscopic colour unknown; lustre probably dull; transparent.

Index of refraction: 1.6 to 1.7.

Electron diffraction pattern: 5.38, 5.07, 2.93, 2.37, 2.14, 1.65.

NOTE:
The following three minerals from previous years also have been approved.

IMA No. 90-006

Fe5O8(OH)3(SO4) where 6 - y = 2z and 2.6 ≤ z ≤ 3.5

Tetragonal: probably P4/m

a = 10.66 c = 6.04 Å

Brownish yellow; dull; translucent.

IMA No. 90-046

The uranium-analogue of polyuranite(Y).

(U,Y)2(UNb,Ta)O7

Orthorhombic: Pbnm

a = 14.48 b = 5.559 c = 5.223 Å

Brown-red; adamantine; opaque.

In reflected light: pale grey with bluish tints; no anisotropism, birefringence, or pleochroism.

IMA No. 91-036

Fe5O8(OC)

Orthorhombic: Pnma

a = 6.31 b = 9.20 c = 7.10 Å

Mesoscopic colour unknown; lustre probably dull; transparent.

Index of refraction: 1.6 to 1.7.

Electron diffraction pattern: 5.38, 5.07, 2.93, 2.37, 2.14, 1.65.