NEW MINERALS APPROVED IN 2004
NOMENCLATURE MODIFICATIONS APPROVED IN 2004
BY THE
COMMISSION ON NEW MINERALS AND MINERAL NAMES
INTERNATIONAL MINERALOGICAL ASSOCIATION

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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 number
  Type locality
  Corresponding author
  Chemical formula
  Relationship to other minerals
  Crystal system, Space group, Structure determined, yes or no
  Unit-cell parameters
  Interplanar spacing (Å) and intensity of the 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.

This list is also available on the CNMMN website:

NO OTHER INFORMATION WILL BE RELEASED BY THE COMMISSION

2004 PROPOSALS

IMA No. 2004-001
Little Patsy pegmatite, Jefferson Co., Colorado, USA
William B. Simmons
[(REE+Y),U,Th,Ca,Fe,…](Nb,Ta,Ti)O₄ with Yb as dominant REE
Yb-dominant analogue of samarskite
Monoclinic: \( P2/c \)
\( a \) 5.687 b 9.918, c 5.201 Å, \( \beta \) 93.18° (for heated material)
3.664(21), 3.086(25), 2.981(100), 1.895(12), 1.865(20), 1.769(15), 1.746(12), 1.587(20)

IMA No. 2004-002
Tastyg spodumene deposit, Tuva, Siberia, Russia
Roberta Oberti  
NaLi₂(Mg₂Al₂Li)₂Si₈O₂₂F₂  
Amphibole group  
Monoclinic: C2/m; Structure determined  
ad 9.357, b 17.580, c 5.267 Å, β 102.37°  
8.11(56), 4.39(54), 3.371(43), 3.002(66), 2.869(26), 2.675(100)  
IMA No. 2004-003  
Findlay Gulch, Saguache Co., Colorado, USA  
Luca Bindi  
Ag₃HgPbSbTe₅  
Strong similarities with petrovicite  
Orthorhombic: Pna₂₁ or Pnam (probably)  
ad 16.495, b 14.762, c 4.506 Å  
3.65(60), 3.60(40), 3.26(50), 3.17(60), 3.01(100), 2.754(60), 2.316(45), 2.137(50), 1.806(55)  
IMA No. 2004-004  
Tahara, Hirukawa-mura, Ena-gun, Gifu Prefecture, Japan  
Satoshi Matsubara  
Ce₂Be₂(SiO₄)₂(OH)₂  
Gadolinite group  
Monoclinic: P2₁/a  
ad 9.8973, b 7.6282, c 4.7505 Å, β 90.416°  
6.06(42), 3.74(37), 3.44(34), 3.13(86), 2.85(100), 2.56(46), 2.21(33), 1.976(30)  
IMA No. 2004-005  
Palitra pegmatite, Lovozero, Kola Peninsula, Russia  
Igor V. Pekov  
CsFe₂S₃  
Cs-dominant analogue of rasvumite and picotpaulite  
Orthorhombic: Cmcm  
ad 9.477, b 11.245, c 5.485 Å  
4.69(30), 4.28(20), 2.981(100), 2.723(40), 2.003(30), 1.910(60), 1.785(30), 1.565(40)  
IMA No. 2004-006  
ca. 7.5 km southwest of Wolf Mountain, Thunder Bay District, Ontario, Canada  
Anton R. Chakhmouradian  
(Ca,Na)₅[(P,S)O₄]₃(OH,Cl)  
Apatite group  
Monoclinic: P2₁/b  
ad 9.445, b 18.853, c 6.8783 Å, γ 120.00°  
2.817(66), 2.781(41), 2.724(79), 2.630(24), 2.267(100), 1.945(39), 1.841(58), 1.784(70)  
IMA No. 2004-007  
Mesamax Northwest deposit, Cape Smith, Ungava region, Canada  
Louis J. Cabri  
Pd₂Sb  
Orthorhombic: Cmc₂₁  
ad 3.3906, b 17.5551, c 6.957 Å  
2.407(34), 2.303(35), 2.245(100), 2.057(52), 2.001(40), 1.367(35), 1.284(42), 1.212(50)
IMA No. 2004-008
Eveslogchorr Mountain, Khibiny massif, Kola Peninsula, Russia
Igor V. Pekov
(Sr,Ba,K)(Ti,Nb)$_2$(Si$_4$O$_{12}$)(OH,O)$_2$·3H$_2$O
Labuntsovite group
Monoclinic: $Cm$; Structure determined
$a$ 14.490, $b$ 14.23, $c$ 7.881 Å, $\beta$ 117.28°
7.10(90), 6.45(50), 5.01(40), 3.230(100), 3.135(80), 2.510(80), 1.728(50), 1.570(45)

IMA No. 2004-009
Dora-Maira massif, Vallone di Gilba, Val Varaita, Piemonte, Italy
Christian Chopin
Mg$_2$(PO$_4$)(OH)
Triplite-triploidite group
Monoclinic: $P2_1/c$
$a$ 9.646, $b$ 12.7314, $c$ 11.980Å, $\beta$ 108.38°
3.292(50), 3.117(66), 2.984(100), 2.851(80), 2.752(28), 2.710(19), 2.484(14)

IMA No. 2004-010
Shergotty SNC meteorite
Charles T. Prewitt
SiO$_2$
Polymorphous with quartz
Orthorhombic: $Pbnm$ or $Pb2n$; Structure determined
$a$ 4.097, $b$ 5.0462, $c$ 4.4946 Å
3.181(72), 2.596(100), 1.970(25), 1.938(64), 1.514(31), 1.499(44), 1.288(19), 1.265(15)

IMA No. 2004-011
Kumdy-Kul, Kokchetav, Kazakhstan
Shyh-Lung Hwang
KAlSi$_3$O$_8$
Feldspar group
Hexagonal: probably $P6/mmm$
$a$ 5.27, $c$ 7.82 Å
7.82, 4.56, 3.94, 2.97, 2.63, 2.50, 2.26, 1.80

IMA No. 2004-012
Dara-i-Pioz glacier, Tajikistan
Leonid A. Pautov
CsLi$_2$AlSi$_4$O$_{10}$F$_2$
Mica group
Monoclinic: $C2/m$, $C2$ or $Cm$
$a$ 5.182, $b$ 9.005, $c$ 10.692 Å, $\beta$ 99.82°
3.897(49), 3.682(80), 3.418(65), 3.174(100), 2.980(41), 2.634(79), 2.582(66), 2.107(94)

IMA No. 2004-013
Fernando-do-Noronha Island, Brazil
Frank C. Hawthorne
(Ba,K)(Mg$_2^{2+},$Ti$^{4+}$)$_3$(Si,Al)$_4$O$_{10}$O$_2$
Mica group
Monoclinic: \(C2/m\); Structure determined
\(a \ 5.3516, \ b \ 9.2817, \ c \ 10.0475 \text{ Å}, \ \beta \ 100.337^\circ\)
3.646(7), 3.383(6), 3.130(7), 2.902(5), 2.637(10), 2.435(5), 2.172(9), 1.988(5)

IMA No. 2004-014
Le Coreux, Ardennes, Belgium
Werner Schreyer
\(La_3Mn^{2+3+}Cu^2+3(Mn^{3+},Fe^{3+},Mn^{4+})_{26}(Si_2O_7)_6O_30\)
New structure type determined
Trigonal: \(P3_1\)
\(a \ 11.525, \ c \ 33.347 \text{ Å}\)
11.116(18) 5.446(31), 3.1873(19), 2.7789(40), 2.7232(100), 2.3702(29), 1.6887(28), 1.6635(40)

IMA No. 2004-015
Central Pyrenees, France
Christian Chopin
\((Mn^{2+},Ca)(REE)V^{3+}AlMn^{2+}(Si_2O_7)(SiO_4)O(OH), \) with Ce as dominant REE
Epidote group
Monoclinic: \(P2_1/m\); Structure determined
\(a \ 8.856, \ b \ 5.729, \ c \ 10.038 \text{ Å}, \ \beta \ 113.088^\circ\)
3.5004, 2.8891, 2.8645, 2.7114, 2.7023, 2.6124, 2.5916

IMA No. 2004-016
Silver Gill mine, Cumbria, United Kingdom
Joseph J. Pluth
\(Cu_6(OH)_{10}(SO_4)\cdotH_2O\)
Langite group
Monoclinic: \(P2_1/c\); Structure determined
\(a \ 3.155, \ b \ 10.441, \ c \ 19.436 \text{ Å}, \ \beta \ 90.089^\circ\)
9.72(90), 7.11(100), 4.60(30), 4.068(20), 2.880(30), 2.318(50), 2.10(15), 1.941(15)

IMA No. 2004-017
Dara-i-Pioz glacier, Tajikistan
Leonid A. Pautov
\(CsKNaCa_2TiO[Si_7O_{18}(OH)]\)
Cs-dominant analogue of tinaksite
Triclinic: \(P\bar{1}\); Structure determined
\(a \ 10.4191, \ b \ 12.2408, \ c \ 7.0569 \text{ Å}, \ \alpha \ 90.857, \ \beta \ 99.193, \ \gamma \ 91.895^\circ\)
4.08(13), 3.33(11), 3.25(16), 3.14(21), 3.06(100), 2.959(20), 2.038(17)

IMA No. 2004-018
Mariposa mine, Texas, USA
Andrew C. Roberts
\(Hg^{2+3}O_2Cl_2\)
Oxyhalide with Hg
Orthorhombic: \(Imam, Imcm, Ima2, \) or \(I2cm\)
\(a \ 6.737, \ b \ 25.528, \ c \ 5.533 \text{ Å}\)
5.413(30), 4.063(80), 3.201(50), 3.023(50), 2.983(60), 2.858(30), 2.765(50), 2.518(100)
IMA No. 2004-019
Qaqqissuk complex, Greenland
Joel D. Grice
\(\text{Ba(Ce,REE)(CO}_3\text{)}_2\text{F}\)
Polymorph of huanghoite-(Ce)
Trigonal: \(P3\); Structure determined
\[a \, 7.2097, \, c \, 18.187 \, \text{Å}\]
4.552(43), 3.674(32), 3.539(41), 3.351(100), 3.096(40), 2.571(35), 2.109(39), 2.080(60)

IMA No. 2004-020
Mesamax Northwest deposit, Québec, Canada
Louis J. Cabri
\(\text{Pd}_4\text{Sb}_3\)
Pd-dominant analogue of genkinite
Tetragonal: \(P4_12_2, \, P4_12_2, \, P4_22_1, \, P4_22_2\), or \(P4_22\)
\[a \, 7.7388, \, c \, 24.145 \, \text{Å}\]
3.0077(90), 2.2633(100), 2.1471(30), 1.9404(60), 1.2465(30), 1.2002(30), 0.9221(30)

IMA No. 2004-021
Kovdor massif, Kola Peninsula, Russia
Victor N. Yakovenchuk
\(\text{Co}_3(\text{PO}_4)_2\cdot8\text{H}_2\text{O}\)
Vivianite group
Monoclinic group
\(C2/m\)
\[a \, 10.034, \, b \, 13.341, \, c \, 4.670 \, \text{Å}, \, \beta \, 105.02^\circ\]
6.67(10), 4.85(4), 3.84(4), 3.195(6), 2.948(7), 2.691(7), 2.521(6), 2.408(6)

IMA No. 2004-022
Horní Halže, Krušné Hory Mts., Czech Republic
Jiří Sejkora
\(\text{Pb}_2(\text{UO}_2)_1(\text{BiO})_8(\text{PO}_4)_3(\text{OH})_{19/6}\text{H}_2\text{O}\)
P-dominant analogue of asselbornite
Cubic: \(I\text{m}3\text{m}, \ I\text{4}3\text{2}, \ I\text{m}3 \text{or} \ I\text{2}3\)
\[a \, 15.5728 \, \text{Å}\]
5.513(53), 4.499(48), 4.163(100), 3.671(77), 3.484(31), 3.179(99), 2.596(54), 1.9776(30)

IMA No. 2004-023
Kara-Oba deposit, Kazakhstan
Leonid A. Pautov
\(\text{Ca}_3(\text{Nd,Y})\text{Al}_2(\text{SO}_4)_3\text{F}13\cdot12\text{H}_2\text{O}\)
Nd-dominant analogue of chukhrovite
Cubic: \(Fd3\)
\[a \, 16.759 \, \text{Å}\]
9.7(10), 5.92(7), 4.20(4), 3.22(8), 2.555(7), 2.240(5), 2.180(6), 1.827(5)

IMA No. 2004-024
Kara-Tangi deposit, Kyrgyzstan
Leonid A. Pautov
\(\text{ZnAl}_4(\text{SO}_4)(\text{OH})_{12/3}\text{H}_2\text{O}\)
Zn-dominant analogue of chalcoalumite
Monoclinic: $P2_1/n$

$a$ 10.246, $b$ 8.873, $c$ 17.22 Å, $\beta$ 96.41°
8.60(100), 7.93(70), 4.83(80), 4.27(100), 2.51(70), 2.29(80), 1.99(95), 1.89(65)

IMA No. 2004-025
Tolbachik volcano, Kamchatka Peninsula, Russia
Sergey V. Krivovichev
Cu$^+$Cu$^{2+}$PbO$_2$(SeO$_3$)$_2$Cl$_5$
New structure type determined
Monoclinic: $C2/m$

$a$ 18.468, $b$ 6.1475, $c$ 15.314 Å, $\beta$ 119.284°
3.86(80), 3.55(80), 3.08(100), 2.50(20), 1.71(30), 1.54(50), 1.45(30), 1.34(40)

IMA No. 2004-026
Poudrette Quarry, Mont Saint-Hilaire, Rouville County, Quebec, Canada
Joel D. Grice
Na$_{12}$(Ce,REE,Sr)$_3$Ca$_6$Mn$_3$Zr$_3$W(Si$_{25}$O$_{73}$)(OH)$_3$(CO$_3$)·H$_2$O
Eudialyte group
Trigonal: $R3m$; Structure determined

$a$ 14.249, $c$ 30.06 Å
11.30(95), 9.46(81), 3.54(36), 3.39(38), 3.36(32), 3.17(75), 2.97(100), 2.85(81)

IMA No. 2004-028
Mina Challacollo, Chile
Jochen Schlüter
KPb$_2$Cl$_5$
New structure type determined
Monoclinic: $P2_1/c$

$a$ 8.864, $b$ 7.932, $c$ 12.491 Å, $\beta$ 90.153°
8.85(39), 5.3350(14), 3.9614(31), 3.685(100), 3.6093(13), 2.6691(42), 2.5483(18)

IMA No. 2004-029
La Creusaz, Valais, Switzerland, and Radium Ridge, South Australia
Joël Brugger
(Ce,Nd,Ca)[(UO$_2$)$_3$O(OH)(PO$_4$)$_2$]·6H$_2$O
Related to phosphuranyllite group
Monoclinic: $P2_1/c$

$a$ 9.295, $b$ 15.53, $c$ 13.718 Å, $\beta$ 112.39°
7.76(100), 5.77(60), 4.42(30), 4.37(30), 3.87(60), 3.43(70), 3.14(80), 2.03(40)

IMA No. 2004-030
Greenbushes, Western Australia
Roberta Oberti
□Li$_2$(Fe$^{2+}$)$_3$Al$_2$Si$_8$O$_{22}$)(OH)$_2$
Amphibole group
Orthorhombic: $Pnma$; Structure determined

$a$ 18.287, $b$ 17.680, $c$ 5.278 Å
8.11(100), 4.42(26), 3.62(13), 3.00(48), 2.797(17), 2.648(14), 2.536(11)
IMA No. 2004-031
Nagybörzsöny ore deposit, Börzsöny Mountains, Hungary
Werner Paar
AuBi5S4
Monoclinic: $F2/m$, $F2$ or $Fm$
$a$ 18.329, $b$ 4.108, $c$ 13.974 Å, $\beta$ 100.90°
9.002(40), 6.876(30), 6.046(20), 3.460(30), 3.382(40), 2.959(100), 2.101(50), 2.086(50)

IMA No. 2004-032
Mutnovsky volcano, Kamchatka Peninsula, Russia
Filippo Vurro
Pb2AsS3(I,Cl)
Orthorhombic: $Pnma$; Structure determined
$a$ 11.543, $b$ 6.6764, $c$ 9.359 Å
4.690(32), 4.370(67), 3.340(73), 3.190(100), 2.715(61), 2.648(66), 2.539(31), 1.894(30)

IMA No. 2004-033
Koashva Mountain, Khibiny massif, Kola Peninsula, Russia
Igor Pekov
Cu3FeS3·2H2O
Orthorhombic: $Pmmm$
a 5.147, $b$ 7.289, $c$ 5.889 Å
5.12(40), 4.21(40), 3.69(30), 3.104(100), 2.727(50), 2.292(50), 1.897(70), 1.828(50)

IMA No. 2004-034
Ilmen Mountain Ridge, South Ural, Russia
Alfred G. Bazhenov
$(\Box,Na)(Na,Ca)_{2}(Mg, Fe^{2+})_{4}Fe^{3+}[Si_{8}O_{22}](OH)_{2}$
Amphibole group
Monoclinic: $C2/m$
a 9.811, $b$ 18.014, $c$ 5.295 Å, $\beta$ 104.10°
8.42(100), 3.391(10), 3.268(13), 3.116(60), 2.800(10), 2.711(20)

IMA No. 2004-035
Iron Monarch quarry, Iron Knob, South Australia
Allan Pring
Mn7(PO4)2(OH)8
Monoclinic: $P2_1/c$; Structure determined
$a$ 11.364, $b$ 5.570, $c$ 10.455 Å, $\beta$ 96.61°
4.436(70), 3.621(100), 3.069(50), 2.941(40), 2.890(20), 2.842(20), 2.780(35), 2.718(20)

IMA No. 2004-036
Mina Santa Rosa, Iquique, Chile
Jochen Schlüter
Na2Cu(CO3)2
Monoclinic: $P2_1/a$
a 6.171, $b$ 8.171, $c$ 5.645 Å, $\beta$ 116.23°
5.06(66), 4.57(57), 4.30(37), 4.26(75), 2.666(100), 2.619(65), 2.450(33), 2.390(25)

IMA No. 2004-037
Mány coal deposit, Tatabánya, Hungary
István E. Sajó
CaAl2(CO3)2(OH)4·H2O
Dresserite group
Orthorhombic: Pnma
a 15.564, b 5.591, c 9.112 Å
7.86(87), 7.78(62), 5.92(100), 4.37(86), 2.957(48), 2.946(44), 2.569(17), 1.902(26)
IMA No. 2004-038
Krásno near Horní Slavkov, Bohemia, Czech Republic
Jiří Sejkora
Cu13(AsO4)6(AsO3OH)4·23H2O
Triclinic: P1; Structure determined
a 6.408, b 14.491, c 16.505 Å, α 102.87, β 101.32, γ 97.13°
15.70(3), 11.98(100), 6.99(3), 5.99(6), 3.448(5), 2.967(5), 2.895(3), 2.400(4)
IMA No. 2004-040
Iron Mine, Kovdor massif, Kola Peninsula, Russia
Nikita V. Chukanov
Na9(Ca,Na)6Ca6Fe2Zr3□Si25O72(CO3)(OH)4
Eudialyte group
Trigonal: R3m; Structure determined
a 14.232, c 30.210 Å
4.31(64), 3.213(100), 3.163(44), 3.027(65), 2.977(91), 2.859(79), 2.703(46), 2.595(45)
IMA No. 2004-041
Linópolis, Divino das Laranjeiras, Minas Gerais State, Brazil
Nikita V. Chukanov
Ca2Fe2+□Mg2Fe2+2Be4(PO4)6(OH)4·6H2O
Related to roscherite
Triclinic: P1; Structure determined
a 6.668, b 9.879, c 9.883 Å, α 73.53, β 85.60, γ 86.93°
9.47(41), 5.92(100), 3.31(34), 3.17(53), 2.784(86), 2.639(30), 2.225(26), 2.202(32)
IMA No. 2004-043
Farnese, Viterbo province, Latium, Italy
Giancarlo Della Ventura
(Na37K9Ca10)[Si42Al42]O168(SO4)12·6H2O
Cancrinite-sodalite group
Hexagonal: P63/m; Structure determined
a 12.8784, c 37.0078 Å
5.404(20), 3.862(23), 3.722(100), 3.668(26), 3.485(65), 3.119(36), 2.648(32), 2.149(34)
IMA No. 2004-044
Fianel Alp, Ferrera valley, Graubünden, Switzerland
Joël Brugger
Na(Mn,Mg,Zn)9[V6Si9O28(OH)](OH)3
Related to saneroite
Triclinic: P1; Structure determined
IMA No. 2004-045
Arnold mine, Fowler, St. Lawrence Co., New York, USA
Roberta Oberti
\( ^{A}\text{Ca}^{B}\text{Mn}\text{Si}_8\text{O}_{22}(\text{OH})_2 \)
Amphibole group
Monoclinic: \( C2/m \); Structure determined
\( a \ 9.7807, \ b \ 18.0548, \ c \ 5.2928 \text{ Å}, \ \beta \ 104.19^\circ \)
9.027(54), 8.395(62), 3.395(62), 3.269(56), 3.113(80), 2.950(51), 2.713(100), 2.531(59)

IMA No. 2004-046
Skaergaard Intrusion, Greenland
Andy McDonald
\( \text{PdCu}_3 \)
Tetragonal: \( I4/mmm \)
\( a \ 3.715, \ c \ 14.651 \text{ Å} \)
3.657(60), 2.138(100), 1.8604(70), 1.8337(40), 1.3049(60), 1.1188(55), 1.0655(30), 0.8459(25)

IMA No. 2004-047
Buraco do Ouro gold mine, Cavalcante, Goiás State, Brazil.
Nilson F. Botelho
\( \text{PdAsSe} \)
Gersdorffite group
Cubic: \( Pa\overline{3} \)
\( a \ 6.089 \text{ Å} \)
3.027(75), 2.725(65), 2.478(65), 1.838(100), 1.077(80), 0.988(70), 0.929(90), 0.918(70)

IMA No. 2004-048
Skrikerum, Sweden
Luca Bindi
\( \text{Ag}_3\text{CuSe}_2 \)
Tetragonal: \( I41/amd \)
\( a \ 8.939, \ c \ 11.844 \text{ Å} \)
4.47(60), 2.891(85), 2.813(80), 2.552(50), 2.473(75), 2.426(100), 2.162(70), 2.034(60)

IMA No. 2004-049
Kasagu-mura, Gifa Prefecture, Japan
Yasuyuki Banno
\( \text{NaMg}_3(\text{AlSi}_3)\text{O}_{10}(\text{OH})_2 \)
Mica group
Monoclinic: \( C2/m \); Structure determined
\( a \ 5.291, b \ 9.16, \ c \ 10.12 \text{ Å}, \ \beta \ 105.1^\circ \)
9.77(100), 4.59(25), 3.26(50), 2.61(100), 2.55(25), 2.45(20), 2.19(20)
Triclinic: \( C1 \); Structure determined
\( a \ 5.289, b \ 9.16, \ c \ 9.892 \text{ Å}, \ \alpha \ 94.45, \ \beta \ 97.74, \ \gamma \ 90.0^\circ \)
9.73(80), 4.57(40), 3.26(40), 2.62(100), 2.55(30), 2.43(25), 2.19(25), 2.17(25)
IMA No. **2004-050**  
Grube Mark near Essershausen, Taunus, Hesse, Germany  
Uwe Kolitsch  
Fe₃(PO₄)₂(OH)₃·5H₂O  
Wavellite group  
Monoclinic: \( P2_1/n \); Structure determined  
\( a \ 9.777, \ b \ 7.358, \ c \ 17.830 \ \text{Å}, \ \beta \ 92.19’ \)  
8.90(100), 8.41(60), 5.870(50), 4.873(30), 3.600(50), 3.357(40), 3.231(80), 2.177(20)

IMA No. **2004-051**  
Kulet Kol region, Kokchetav massif, Kazakhstan  
Shyh-Lung Hwang  
5Al₂O₃·H₂O  
Hexagonal: \( P6_3mc \); Structure determined  
\( a \ 5.58, \ c \ 8.86 \ \text{Å} \)  
4.839, 4.423, 4.231, 2.783, 2.530, 2.361, 1.673, 1.435, 1.417

IMA No. **2004-052**  
Chivruai river valley, Lovozero massif, Kola Peninsula, Russia  
Sergey V. Krivovichev  
Ca₃Ti₅[(Si₆O₁₇)₂O(OH)₄]-14H₂O  
Zorite group  
Orthorhombic: \( Cmmm \); Structure determined  
\( a \ 7.17, \ b \ 22.98, \ c \ 6.94 \ \text{Å} \)  
11.6(10), 6.91(9), 5.23(5), 3.41(5), 3.35(5), 3.04(8), 2.97(4), 2.58(5)

IMA No. **2004-053**  
Mt. Lepkhe-Nelm, Lovozero massif, Kola Peninsula, Russia  
Victor N. Yakovenchuk  
Pb₃[Al(OH)₆](SO₄)(OH)  
New structure type determined  
Trigonal: \( R3c \)  
\( a \ 7.693, \ c \ 31.57 \ \text{Å} \)  
3.58(10), 3.10(6), 2.591(9), 2.216(5), 2.048(7), 1.893(5), 1.859(4), 1.704(8)

IMA No. **2004-054**  
Sixiangkou L6 chondrite  
Ahmed El Goresy  
(Na,Ca)AlSi₃O₈  
Feldspar group  
Tetragonal: \( I4/m \)  
\( a \ 9.263, \ c \ 2.706 \ \text{Å} \)  
6.55(66), 4.63(60), 2.931(100), 2.265(35), 2.032(85), 1.737(37), 1.543(33), 1.450(42)

**OLDER PROPOSALS**

IMA No. **2003-031a**  
Aitern-Süd, Black Forest, Germany  
Kurt Walenta  
(Pb,REE,Ca)Cu₆(AsO₄)₃(OH)₆·3H₂O
Mixite group
Hexagonal: \( P6_3/m \)
\[
a = 13.77, \; c = 5.94 \text{ Å}
\]
12.01(10), 4.51(6), 3.60(8), 3.31(5), 2.98(6), 2.74(5), 2.61(5), 2.49(7), 1.817(5)

IMA No. 99-004a
Kudriavy volcano, Iturup Island, Kuriles, Russia
Ilya V. Chaplygin
ReS₂
Triclinic: \( P \); Structure determined
\[
a = 6.470, \; b = 6.368, \; c = 6.401 \text{ Å}, \; \alpha = 105.0, \; \beta = 91.59, \; \gamma = 118.90^\circ
\]
2.7834(10), 2.764(10), 2.733(10), 2.642(8), 2.404(8), 2.371(9), 2.1035(8), 2.0914(9)

IMA No. 2003-045a
Heftetjern pegmatite, southern Norway
Frank C. Hawthorne
(Sc,Ca)₂KBe₃Si₁₂O₃₀
Milarite group
Hexagonal: \( P6/mmc \); Structure determined
\[
a = 10.097, \; c = 13.991 \text{ Å}
\]

IMA No. 2002-042a
Aris intrusion, Namibia
Fernando Cámara
Na₃La[Si₆O₁₅]·2H₂O
La-dominant analogue of sazhinite
Orthorhombic: \( Pmm2 \); Structure determined
\[
a = 7.415, \; b = 15.515, \; c = 7.164 \text{ Å}
\]
7.42(59), 6.50(48), 5.36(60), 5.26(68), 3.411(100), 3.345(45), 3.252(83), 3.226(45)

**NOMENCLATURE OF A MINERAL GROUP**

Application and status of the amphibole nomenclature: discrimination between approved amphiboles and named amphiboles

New root names for amphibole species can only be proposed when new heterovalent substitutions (= substitutions not mentioned in the 1997 and 2003/4 amphibole reports) have been observed in natural material; such material consists of a new amphibole species, and it must be submitted to the CNMMN with its new root or trivial name, and it should fulfil the requirements asked for all new mineral species. If approved, these new amphiboles receive \( A \) status in IMA listings.

New amphibole names originating from new homovalent substitutions are always formed by use of an appropriate prefix to an existing root or trivial name, according to the schemes of the 1997 and 2003/4 reports. The status of such new amphibole names will depend on their authors: they will have the choice to submit the new amphibole to the CNMMN for approval, or not.

This will lead to two categories of amphibole species:

**Approved amphiboles**
An amphibole is considered as an approved species and receives $A$ status in the IMA listing if it has been submitted to, and approved by the CNMMN, according to the usual rules applied to all new mineral species. New root names need CNMMN approval.

**Named amphiboles**

Those researchers who have not enough data to prepare a regular new-mineral proposal, or just are not willing to submit a proposal for whatever reason, may give a name to their amphibole according to the 1997 and 2003/4 amphibole nomenclature schemes and publish it. These amphibole names, however, will not receive $A$ status and will not be included in the official IMA listings, because the material to which such a name was applied has not been investigated according to the rules for a new species. **Authors not seeking approval run the risk that other researchers will submit their own material for species approval with the same name.**

**A proper order for the use of prefixes in amphibole names**

The approved ordering scheme does not split any of the 'end-member' names, as listed in 1997 & 2003/04 amphibole reports, nor any of the names that appear in the nomenclature figures. It is not possible to implement any scheme of prefix order based on systematically increasing or decreasing elements according to valencies, or of M1, M2, M3 & M4 order, without splitting the existing 'end-member' names. So the approved scheme is:

1. Any magnesio or ferro prefixes come immediately in front of the root name.
2. Alumino, ferri, ferric, mangani or chromio prefixes come next in front. [More than one together is not known].
3. The very first (i.e., at the front) prefix is proto, parvo or magno.
4. Next after (3) come any anions, chloro, or fluoro.
5. Finally any remaining prefixes come after (4) and before (2) being in alphabetical order.

Prefixes are hyphenated except that the prefix immediately before the root name is joined to the root name without a hyphen, unless two vowels would then come together or it would be unclear (see 1997 amphibole report).

The decisions on named amphiboles and the order of prefixes in amphibole names have been published by Burke & Leake [Canadian Mineralogist, 42 (2004), 1881-1883; American Mineralogist, 90 (2005), 516-517].

**MONTHLY ANNOUNCEMENT OF NEW MINERALS ON THE CNMMN WEBSITE**

After approval of a new mineral by the CNMMN, the following data will be published one month after the approval date of the CNMMN website:

- IMA number
- Type locality
- Corresponding author
- Chemical formula
- Relationship to other minerals
- Crystal system, Space group, Unit-cell parameters
- Structure determined, yes or no
- Strongest lines in the X-ray powder-diffraction pattern
DISCREDITATION
The approval of proposal 2004-002 implies the official discreditation of clinoholmquistite, as holotype material from the latter mineral was used for the description of the former, new mineral. Clinoholmquistite is now only a theoretical name in the amphibole nomenclature system.

RENAME MINERAL
IMA No. 04-A: cesium kupletskite is renamed as kupletskite-(Cs).