

# IMA Commission on New Minerals, Nomenclature and Classification (CNMNC)

## NEWSLETTER 46

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### New minerals and nomenclature modifications approved in 2018

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The information given here is provided by the IMA Commission on New Minerals, Nomenclature and Classification for comparative purposes and as a service to mineralogists working on new species.

Each mineral is described in the following format:

**Mineral name, if the authors agree on its release prior to the full description appearing in press**

Chemical formula

Type locality

Full authorship of proposal

E-mail address of corresponding author

Relationship to other minerals

Crystal system, Space group; Structure determined, yes or no

Unit-cell parameters

Strongest lines in the powder X-ray diffraction pattern

Type specimen repository and specimen number

Citation details for the mineral prior to publication of full description

**Citation details concern the fact that this information will be published in the *Mineralogical Magazine* on a routine basis, as well as being added month by month to the Commission's web site.**

**It is still a requirement for the authors to publish a full description of the new mineral.**

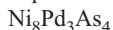
NO OTHER INFORMATION WILL BE RELEASED BY THE COMMISSION

<https://doi.org/10.1180/mgm.2018.161>

NEW MINERAL PROPOSALS APPROVED IN  
OCTOBER 2018

## IMA No. 2018-075

Nipalarsite



Monchetundra layered intrusion (borehole 1819, depth 101.4 m), Kola Peninsula, Russia (67°52' 22", 32°47'60")

Tatiana Grokhovskaya, Oxana Karimova, Anna Vymazalová\*, František Laufek, Dmitry Chareev and Victor Rassulov

\*E-mail: [anna.vymazalova@geology.cz](mailto:anna.vymazalova@geology.cz)

New structure type

Cubic:  $Fm\bar{3}m$ ; structure determined $a = 11.4428(9) \text{ \AA}$ 

2.859(10), 2.623(6), 2.557(6), 2.334(11), 2.201(35), 2.021(100), 1.906(8), 1.429(7)

Type material is deposited in the collections of the Fersman Mineralogical Museum, Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5236/1

How to cite: Grokhovskaya, T., Karimova, O., Vymazalová, A., Laufek, F., Chareev, D. and Rassulov, V. (2018) Nipalarsite, IMA 2018-075. CNMNC Newsletter No. 46, December 2018, page 1370; *Mineralogical Magazine*, **82**, 1369–1379.

## IMA No. 2018-077

Krasnoshteinite



Romanovskiy area (borehole #2001, depth 248 m), Verkhnekamskoe deposit, 30 km S of the city of Berezniki, Perm Krai, NW Urals, Russia

Igor V. Pekov\*, Natalia V. Zubkova, Ilya I. Chaikovskiy, Elena P. Chirkova, Dmitry I. Belakovskiy, Vasiliy O. Yapaskurt, Yana V. Bychkova, Inna S. Lykova, Sergey N. Britvin and Dmitry Y. Pushcharovsky

\*E-mail: [igorpekov@mail.ru](mailto:igorpekov@mail.ru)

New structure type

Monoclinic:  $P2_1$ ; structure determined

$a = 8.7398(2)$ ,  $b = 14.4129(3)$ ,  $c = 11.3060(3) \text{ \AA}$ ,  
 $\beta = 106.665(2)^\circ$

10.81(41), 8.65(26), 8.38(67), 7.22(100), 5.452(22), 3.720(19), 3.610(21), 3.019(22)

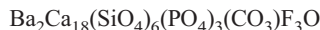
Type material is deposited in the collections of the Fersman Mineralogical Museum, Russian

Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5239/1

How to cite: Pekov, I.V., Zubkova, N.V., Chaikovskiy, I.I., Chirkova, E.P., Belakovskiy, D.I., Yapaskurt, V.O., Bychkova, Y.V., Lykova, I. S., Britvin, S.N. and Pushcharovsky, D.Y. (2018) Krasnoshteinite, IMA 2018-077. CNMNC Newsletter No. 46, December 2018, page 1370; *Mineralogical Magazine*, **82**, 1369–1379.

## IMA No. 2018-078

Aravaite



Hatrurim Complex, Negev Desert, near Arad city, Israel (31°13'58"N, 35°16'2"E)

Evgeny V. Galuskin\*, Biljana Krüger, Irina O. Galuskina, Hannes Krüger and Yevgeny Vapnik

\*E-mail: [evgeny.galuskin@us.edu.pl](mailto:evgeny.galuskin@us.edu.pl)

Arctite supergroup

Trigonal:  $R\bar{3}m$ ; structure determined $a = 7.1255(1)$ ,  $c = 66.2902(1) \text{ \AA}$ 

3.566(60), 3.075(89), 2.776(86), 2.764(57), 2.157(39), 1.967(50), 1.783(100), 1.498(49)

Type material is deposited in the collections of the Fersman Mineralogical Museum, Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 4960/1

How to cite: Galuskin, E.V., Krüger, B., Galuskina, I.O., Krüger, H. and Vapnik, Y. (2018) Aravaite, IMA 2018-078. CNMNC Newsletter No. 46, December 2018, page 1370; *Mineralogical Magazine*, **82**, 1369–1379.

## IMA No. 2018-079

Gasparite-(La)



Ushkatyn-3 Mn-Fe deposit, close to the town of Zhairam, Karagandy Province, Kazakhstan (48° 16'06"N, 70°10'43"E)

Oleg S. Vereshchagin\*, Elena N. Perova, Sergey N. Britvin, Aleksey I. Brusnitsyn, Yury S. Polekhovskiy, Vladimir V. Shilovskikh and Vladimir N. Bocharov

\*E-mail: [o.vereshchagin@spbu.ru](mailto:o.vereshchagin@spbu.ru)

Monazite group

Monoclinic:  $P2_1/n$ 

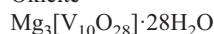
$a = 6.7646(4)$ ,  $b = 7.2184(9)$ ,  $c = 7.0040(4) \text{ \AA}$ ,  
 $\beta = 104.51(1)^\circ$

4.21(22), 3.60(20), 3.39(46), 3.17(100), 2.98(62), 2.02(24), 1.94(25), 1.79(22)

Type material is deposited in the collections of the Mineralogical Museum, Department of Mineralogy, St. Petersburg State University, St. Petersburg, Russia, catalogue number 19692  
How to cite: Vereshchagin, O.S., Perova, E.N., Britvin, S.N., Brusnitsyn, A.I., Polekhovskiy, Y.S., Shilovskikh, V.V. and Bocharov, V.N. (2018) Gasparite-(La), IMA 2018-079. CNMNC Newsletter No. 46, December 2018, page 1370; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-080

Okieite



Burro mine, Slick Rock district, San Miguel Co., Colorado, USA (38.04507°N, 108.88972°W); Hummer mine, Paradox Valley, Montrose Co., Colorado, USA (38.22556°N, 108.75028°W)  
Anthony R. Kampf\*, Barbara P. Nash, Paul M. Adams, Joe Marty and John M. Hughes

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

Decavanadate family of minerals

Triclinic:  $P\bar{1}$ ; structure determined

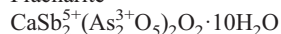
$a = 10.5566(2)$ ,  $b = 10.7566(2)$ ,  $c = 21.355(1)$  Å,  
 $\alpha = 90.015(6)$ ,  $\beta = 97.795(7)$ ,  $\gamma = 104.337(7)^\circ$   
11.04(17), 9.71(100), 8.32(19), 6.42(12), 3.150(9), 3.024(7), 2.621(10), 2.087(7)

Cotype material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, Los Angeles, California, USA, catalogue numbers 66784 and 66785 (Burro mine) and 66786 (Hummer mine)

How to cite: Kampf, A.R., Nash, B.P., Adams, P.M., Marty, J. and Hughes, J.M. (2018) Okieite, IMA 2018-080. CNMNC Newsletter No. 46, December 2018, page 1371; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-081

Prachařite



Plaka Mine No. 80, Plaka, Lavrion District, Attiki Prefecture, Greece

Uwe Kolitsch\*, Jiří Sejkora, Dan Topa, Anthony R. Kampf, Jakub Plášil, Branko Rieck and Karl Heinz Fabritz

\*E-mail: [uwe.kolitsch@nhm-wien.ac.at](mailto:uwe.kolitsch@nhm-wien.ac.at)

New structure type

Trigonal:  $P\bar{3}c1$ ; structure determined

$a = 13.951(2)$ ,  $c = 19.899(2)$  Å

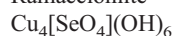
9.96(100), 6.05(33), 5.16(30), 3.314(59), 2.994(95), 2.570(31), 1.717(30), 1.593(26)

Cotype material is deposited in the mineralogical collections of the Natural History Museum, Vienna, Austria, catalogue no. O 357, the National Museum, Prague, Czech Republic, catalogue no. PIP 15/2018, and the Natural History Museum of Los Angeles County, USA, catalogue no. 67242

How to cite: Kolitsch, U., Sejkora, J., Topa, D., Kampf, A.R., Plášil, J., Rieck, B. and Fabritz, K. H. (2018) Prachařite, IMA 2018-081. CNMNC Newsletter No. 46, December 2018, page 1371; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-082

Ramaccioniite



Mina San Pedro, Cuesta de Los Llantenes mining district, NW Jagüé, Vinchina Department, La Rioja Province, Argentina (28°20–40'S, 68°30–45'W)

Christian L. Lengauer\*, Martin Ende, Dan Topa, Raúl Lira and Werner H. Paar

\*E-mail: [christian.lengauer@univie.ac.at](mailto:christian.lengauer@univie.ac.at)

The Se analogue of brochantite

Monoclinic:  $P2_1/a$ ; structure determined

$a = 13.3703(3)$ ,  $b = 9.9547(2)$ ,  $c = 6.0412(3)$  Å,  
 $\beta = 103.150(3)^\circ$

6.511(100), 5.448(21), 3.978(23), 3.952(46), 3.255(85), 3.215(15), 2.724(46), 2.533(37)

Type material is deposited in the mineralogical collections of the Naturhistorisches Museum Wien, Burgring 7, 1010 Wien, Austria, catalogue number O 573

How to cite: Lengauer, C.L., Ende, M., Topa, D., Lira, R. and Paar, W.H. (2018) Ramaccioniite, IMA 2018-082. CNMNC Newsletter No. 46, December 2018, page 1371; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-083

Cuatrocapaite-(NH<sub>4</sub>)



Torreillas mine, Salar Grande, Iquique Province, Tarapacá Region, Chile (20°58'13"S, 70°8'17"W)

Anthony R. Kampf\*, Nikita V. Chukanov, Gerhard Möhn, Maurizio Dini, Arturo A. Molina Donoso and Henrik Friis

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

The NH<sub>4</sub> analogue of cuatrocapaite-(K) (IMA No. 2018-084; this newsletter)

Trigonal:  $P\bar{3}m$ ; structure determined

$a = 5.2532(2)$ ,  $c = 46.688(2)$  Å

15.68(100), 5.20(56), 4.518(35), 3.256(42), 3.111(32), 2.625(71), 2.490(41), 2.349(47)

Cotype material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue numbers 66984, 66985 and 66986, and the Fersman Mineralogical Museum, Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5255/1

How to cite: Kampf, A.R., Chukanov, N.V., Möhn, G., Dini, M., Molina Donoso, A.A. and Friis, H. (2018) Cuatrocapaite-(NH<sub>4</sub>), IMA 2018-083. CNMNC Newsletter No. 46, December 2018, page 1371; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-084

Cuatrocapaite-(K)

$K_3(NaMg\Box)(As_2O_3)_6Cl_6 \cdot 16H_2O$

Torreillas mine, Salar Grande, Iquique Province, Tarapacá Region, Chile (20°58'13"S, 70°8'17"W)

Anthony R. Kampf\*, Nikita V. Chukanov, Gerhard Möhn, Maurizio Dini, Arturo A. Molina Donoso and Henrik Friis

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

The K analogue of cuatrocapaite-(NH<sub>4</sub>) (IMA No. 2018-083; this newsletter)

Trigonal:  $P\bar{3}m$ ; structure determined

$a = 5.264(1)$ ,  $c = 46.228(8)$  Å

15.50(100), 5.13(32), 3.228(33), 3.098(33), 2.621(69), 2.489(25), 2.339(36), 1.835(21)

Type material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 66987

How to cite: Kampf, A.R., Chukanov, N.V., Möhn, G., Dini, M., Molina Donoso, A.A. and Friis, H. (2018) Cuatrocapaite-(K), IMA 2018-084. CNMNC Newsletter No. 46, December 2018, page 1372; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-085

Badakhshanite-(Y)

$Y_2Mn_4Al(Si_2B_7BeO_{24})$

Dorozhniy pegmatite, 45 km E of Murghab, Eastern Pamir, Gorno-Badakhshanskij Autonomous Region, Tajikistan

Leonid A. Pautov\*, Mirak A. Mirakov, Fernando Cámara Artigas, Elena Sokolova, Frank C. Hawthorne, Manuchehr A. Schodibekov and Vladimir Y. Karpenko

\*E-mail: [pla58@mail.ru](mailto:pla58@mail.ru)

Related to perettiite-(Y)

Orthorhombic:  $Pnma$ ; structure determined

$a = 12.852(1)$ ,  $b = 4.5848(5)$ ,  $c = 12.8539(8)$  Å

9.07(45), 4.59(42), 4.07(39), 3.042(100), 2.637(68), 2.533(60), 2.119(32), 1.828(36)

Type material is deposited in the collections of the Fersman Mineralogical Museum, Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5235/1

How to cite: Pautov, L.A., Mirakov, M.A., Cámara Artigas, F., Sokolova, E., Hawthorne, F. C., Schodibekov, M.A. and Karpenko, V.Y. (2018) Badakhshanite-(Y), IMA 2018-085. CNMNC Newsletter No. 46, December 2018, page 1372; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-087

Ferriakasaite-(Ce)

$CaCeFe^{3+}AlMn^{2+}(Si_2O_7)(SiO_4)O(OH)$

Monte Maniglia mine, Bellino, Varaita Valley, Cuneo Province, Piedmont, Italy (44°33'42.5"N, 6°54'59.2"E)

Cristian Biagioni\*, Corrado Balestra, Marco Pasero, Marco E. Ciriotti, Paola Bonazzi and Federica Zaccarini

\*E-mail: [cristian.biagioni@unipi.it](mailto:cristian.biagioni@unipi.it)

Epidote supergroup

Monoclinic:  $P2_1/m$ ; structure determined

$a = 8.9071(5)$ ,  $b = 5.7081(4)$ ,  $c = 10.1250(6)$  Å,  $\beta = 114.151(3)^\circ$

4.65(mw), 3.519(m), 2.911(vs), 2.841(mw), 2.711(ms), 2.616(ms), 2.404(mw), 2.181(mw)

Type material is deposited in the mineralogical collections of the Museo di Storia Naturale, Università di Pisa, Via Roma 79, Calci (Pisa), Italy, catalogue number 19903

How to cite: Biagioni, C., Balestra, C., Pasero, M., Ciriotti, M.E., Bonazzi, P. and Zaccarini, F. (2018) Ferriakasaite-(Ce), IMA 2018-087.

CNMNC Newsletter No. 46, December 2018, page 1372; *Mineralogical Magazine*, **82**, 1369–1379.

IMA No. **2018-088**

Ekebergite



“In den Dellen” (= Bimsgrube Ziegowski) pumice quarry, Mendig, Laacher See Komplex, Eifel, Rheinland-Pfalz, Germany (50°23'40"N, 7°17'12"E)

Johan Kjellman\*, Cesar Pay Gómez, Peter Lazor, Jaroslav Majka, Chris Stanley and Jens Najorka

\*E-mail: [johan.kjellman@em.uu.se](mailto:johan.kjellman@em.uu.se)

New structure type

Monoclinic:  $P2_1/c$ ; structure determined

$a = 9.815(2)$ ,  $b = 5.629(2)$ ,  $c = 5.224(4)$  Å,  $\beta = 93.520(9)^\circ$

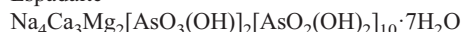
3.619(38), 3.084(100), 2.953(98), 2.817(40), 2.604(43), 1.913(38), 1.845(34), 1.476(35)

Cotype material is deposited in the mineralogical collections of the Swedish Museum of Natural History, P. O. Box 50007, SE-104 05 Stockholm, Sweden, catalogue number NRM 20170122, and the Natural History Museum, Cromwell Road, London SW7 5BD, United Kingdom, registration number BM 2017,17

How to cite: Kjellman, J., Pay Gómez, C., Lazor, P., Majka, J., Stanley, C. and Najorka, J. (2018) Ekebergite, IMA 2018-088. CNMNC Newsletter No. 46, December 2018, page 1373; *Mineralogical Magazine*, **82**, 1369–1379.

IMA No. **2018-089**

Espadaite



Torreillas mine, Salar Grande, Iquique Province, Tarapacá Region, Chile (20°58'13"S, 70°8'17"W)

Anthony R. Kampf\*, Barbara Nash, Maurizio Dini and Arturo A. Molina Donoso

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

New structure type

Orthorhombic:  $Ccca$ ; structure determined

$a = 12.365(1)$ ,  $b = 22.181(2)$ ,  $c = 18.329(1)$  Å  
11.10(44), 9.26(100), 4.582(49), 4.118(73), 3.499(80), 3.068(79), 2.766(39), 2.710(39)

Type material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 67285

How to cite: Kampf, A.R., Nash, B., Dini, M. and Molina Donoso, A.A. (2018) Espadaite, IMA 2018-089. CNMNC Newsletter No. 46, December 2018, page 1373; *Mineralogical Magazine*, **82**, 1369–1379.

IMA No. **2018-090**

Jean Kempite



Mohawk No. 2 mine, Mohawk, Keweenaw Co., Michigan, USA

Travis A. Olds\*, Anthony R. Kampf, Fabrice Dal Bo, Peter C. Burns and Xiaofeng Gao

\*E-mail: [travis.olds@wsu.edu](mailto:travis.olds@wsu.edu)

Structurally related to guérinite

Triclinic:  $P\bar{1}$ ; structure determined

$a = 6.710(6)$ ,  $b = 14.90(1)$ ,  $c = 15.94(1)$  Å,  $\alpha = 73.58(1)$ ,  $\beta = 81.98(1)$ ,  $\gamma = 82.75(1)^\circ$

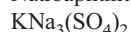
9.25(100), 5.39(80), 3.791(41), 3.180(60), 2.954(86), 2.854(46), 1.799(34), 1.628(32)

Type material is deposited in the collections of the A.E. Seaman Mineral Museum, Michigan Tech, 1404 Sharon Ave, Houghton, MI 49931, USA, catalogue number DM 31705, and the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 66799

How to cite: Olds, T.A., Kampf, A.R., Dal Bo, F., Burns, P.C. and Gao, X. (2018) Jean Kempite, IMA 2018-090. CNMNC Newsletter No. 46, December 2018, page 1373; *Mineralogical Magazine*, **82**, 1369–1379.

IMA No. **2018-091**

Natroaphthalite



Arsenatnaya fumarole, Second scoria cone of the Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka peninsula, Far-Eastern Region, Russia (55°41'N, 160°14'E, 1200 m asl)

Nadezhda V. Shchipalkina, Igor V. Pekov, Nikita V. Chukanov, Natalia V. Zubkova, Dmitry I. Belakovskiy, Natalia N. Koshlyakova, Sergey N. Britvin, Evgeny G. Sidorov and Svetlana A. Vozchikova

\*E-mail: [estel58@yandex.ru](mailto:estel58@yandex.ru)

Isostructural with apthitalite and möhnite

Trigonal:  $P\bar{3}m1$ ; structure determined

$a = 5.6014(3)$ ,  $c = 7.1507(5)$  Å  
4.010(42), 3.574(15), 2.877(77), 2.797(100), 2.007(40), 1.631(12), 1.617(11), 1.400(10)

Type material is deposited in the collections of the Fersman Mineralogical Museum, Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5254/1

How to cite: Shchipalkina, N.V., Pekov, I.V., Chukanov, N.V., Zubkova, N.V., Belakovskiy, D.I., Koshlyakova, N.N., Britvin, S.N., Sidorov, E.G. and Vozchikova, S.A. (2018) Natrophthalite, IMA 2018-091. CNMNC Newsletter No. 46, December 2018, page 1373; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2017-057a

Lehmannite



Arsenatnaya fumarole, Second scoria cone of the Northern Breakthrough of the Great Tolbachik Fissure Eruption, Tolbachik volcano, Kamchatka Peninsula, Far-Eastern Region, Russia (55°41'N, 160°14'E, 1200 m asl)

Igor V. Pekov\*, Sergey N. Britvin, Natalia N. Koshlyakova, Yury S. Polekhovskiy, Jörg Göttlicher, Marina F. Viganina, Anna G. Turchkova and Evgeny G. Sidorov

\*E-mail: [igorpekov@mail.ru](mailto:igorpekov@mail.ru)

Closely related to of arsmirandite

Monoclinic:  $C2/m$ ; structure determined

$a = 10.824(1)$ ,  $b = 21.108(2)$ ,  $c = 11.856(1)$  Å,  
 $\beta = 117.195(8)^\circ$

10.52(65), 8.74(100), 5.419(36), 5.273(74),  
3.722(37), 2.636(43), 2.573(98), 1.889(33)

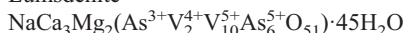
Type material is deposited in the collections of the Fersman Mineralogical Museum of the Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5065/1

How to cite: Pekov, I.V., Britvin, S.N., Koshlyakova, N.N., Polekhovskiy, Y.S., Göttlicher, J., Viganina, M.F., Turchkova, A.G. and Sidorov, E.G. (2018) Lehmannite, IMA 2017-057a. CNMNC Newsletter No. 46, December 2018, page 1374; *Mineralogical Magazine*, **82**, 1369–1379.

## NEW MINERAL PROPOSALS APPROVED IN NOVEMBER 2018

#### IMA No. 2018-092

Lumsdenite



Packrat mine, Lumsden Canyon, near Gateway, Mesa Co., Colorado, USA (38°38'51.28"N, 109°02'49.77"W)

Anthony R. Kampf\*, John M. Hughes, Barbara P. Nash, Joe Marty and Timothy P. Rose

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

Vanarsite mineral family

Triclinic:  $P\bar{1}$ ; structure determined

$a = 10.3490(5)$ ,  $b = 17.6263(9)$ ,  $c = 23.256(2)$  Å,  
 $\alpha = 82.208(6)$ ,  $\beta = 88.351(6)$ ,  $\gamma = 81.702(6)^\circ$   
17.30(44), 14.86(80), 13.04(25), 10.22(32), 9.35(100), 8.34(32), 2.809(23), 2.686(17)

Type material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 66787

How to cite: Kampf, A.R., Hughes, J.M., Nash, B.P., Marty, J. and Rose, T.P. (2018) Lumsdenite, IMA 2018-092. CNMNC Newsletter No. 46, December 2018, page 1374; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-094

Armellinoite-(Ce)



In the dumps of the Montaldo di Mondovì mine, Frazze Rocconi, Borgata Oberti, Montaldo di Mondovì (CN), Corsaglia Valley, Piedmont, Italy (44°19'28"N, 7°51'8"E)

Fernando Cámara\*, Marco E. Ciriotti, Uwe Kolitsch, Ferdinando Bosi, Erica Bittarello, Piero Brizio, Pietro Vignola and Günter Blass

\*E-mail: [fernando.camara@unimi.it](mailto:fernando.camara@unimi.it)

Isostructural with pottsite

Tetragonal:  $I4_1/a$ ; structure determined

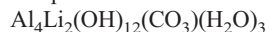
$a = 10.749(2)$ ,  $c = 12.030(2)$  Å  
7.983(36), 4.443(23), 2.957(100), 2.398(14),  
1.875(22), 1.728(19), 1.612(13), 1.475(26)

Type material is deposited in the mineralogical collections of the Museo delle Collezioni di Mineralogia, Gemmologia, Petrologia e Giacimentologia, Dipartimento di Scienze della Terra "A. Desio", Università di Milano, catalogue number MCMGPG-H2018-003

How to cite: Cámara, F., Ciriotti, M.E., Kolitsch, U., Bosi, F., Bittarello, E., Brizio, P., Vignola, P. and Blass, G. (2018) Armellinoite-(Ce), IMA 2018-094. CNMNC Newsletter No. 46, December 2018, page 1374; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2018-095**

Akopovaite



Ore body #2 on the right side of the Asan-Usan glacier, Karasu-Karavshinskoye Sn-deposit, northern slope of the Turkestan Ridge, Kyrgyzstan (39.5893°N, 70.2489°E)

Vladimir Y. Karpenko\*, Leonid A. Pautov, Elena S. Zhitova, Atali A. Agakhanov, Maria G. Krzhizhanovskaya, Oleg I. Siidra and Victor A. Rassulov

\*E-mail: [mineralab@mail.ru](mailto:mineralab@mail.ru)

Hydroxalite supergroup

Monoclinic:  $C2/m$ ; structure determined

$a = 5.0953(6)$ ,  $b = 8.877(1)$ ,  $c = 7.806(1)$  Å,  $\beta = 102.572(6)^\circ$

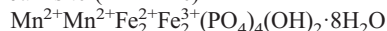
7.66(100), 4.397(27), 3.821(45), 2.532(10), 2.488(27), 2.227(16), 1.903(18), 1.471(10)

Type material is deposited in the collections of the Fersman Mineralogical Museum of the Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, catalogue # 5200/1

How to cite: Karpenko, V.Y., Pautov, L.A., Zhitova, E.S., Agakhanov, A.A., Krzhizhanovskaya, M.G., Siidra, O.I. and Rassulov, V.A. (2018) Akopovaite, IMA 2018-095. CNMNC Newsletter No. 46, December 2018, page 1375; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2018-096**

Jahnsite-(MnMnFe)



Malpensata granitic pegmatite dike, Piona pegmatite swarm, Colico (LC), Lombardy, Italy (46° 07'20"N, 9°19'33"E)

Pietro Vignola\*, Frédéric Hatert, Nicola Rotiroti, Fabrizio Nestola, Andrea Risplendente and Francesco Vanini

\*E-mail: [pietro.vignola@idpa.cnr.it](mailto:pietro.vignola@idpa.cnr.it)

Jahnsite group

Monoclinic:  $P2/a$ ; structure determined

$a = 14.6983(6)$ ,  $b = 7.1477(2)$ ,  $c = 10.0209(4)$  Å,  $\beta = 107.128(4)^\circ$

9.221(89), 4.932(78), 4.651(78), 3.971(70), 3.504(63), 3.295(46), 2.840(82), 2.590(100)

Type material is deposited in the mineralogical collections of the Laboratoire de Minéralogie, University of Liege, Bâtiment B18, Sart Tilman, B-4000 Liège, Belgium, catalogue no. 21168

How to cite: Vignola, P., Hatert, F., Rotiroti, N., Nestola, F., Risplendente, A. and Vanini, F. (2018) Jahnsite-(MnMnFe), IMA 2018-096. CNMNC Newsletter No. 46, December 2018, page 1375; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2018-098**

Gladkovskyite



Vorontsovskoe gold deposit, ca. 13 km S of the city of Krasnotur'insk, Sverdlovskaya Oblast', Northern Urals, Russia

Anatoly V. Kasatkin\*, Jakub Plášil, Emil Makovicky, Radek Škoda, Atali A. Agakhanov, Sergey Y. Stepanov and Fabrizio Nestola

\*E-mail: [anatoly.kasatkin@gmail.com](mailto:anatoly.kasatkin@gmail.com)

New structure type

Trigonal:  $R31c$ ; structure determined

$a = 9.6392(2)$ ,  $c = 6.456(1)$  Å

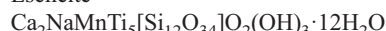
5.11(80), 4.83(70), 3.49(50), 3.23(20), 2.86(100), 2.68(30), 2.55(60), 1.83(20)

Type material is deposited in the collections of the Fersman Mineralogical Museum of the Russian Academy of Sciences, Leninskiy Prospekt 18-2, Moscow 119071, Russia, registration number 5248/1

How to cite: Kasatkin, A.V., Plášil, J., Makovicky, E., Škoda, R., Agakhanov, A.A., Stepanov, S.Y. and Nestola, F. (2018) Gladkovskyite, IMA 2018-098. CNMNC Newsletter No. 46, December 2018, page 1375; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2018-099**

Escheite



Ariskop quarry, Aris phonolite, Windhoek district, Namibia (22°46'6"S, 17°7'51"E)

Fernando Cámara\*, Fabrizio Nestola, Marco E. Ciriotti, Uwe Kolitsch, Marco Merlini, Günter Blass and Ralph Wartha

\*E-mail: [fernando.camara@unimi.it](mailto:fernando.camara@unimi.it)

Zorite group

Orthorhombic:  $Bbm2$ ; structure determined

$a = 14.2465(2)$ ,  $b = 22.9871(4)$ ,  $c = 13.7304(2)$  Å  
6.873(30), 6.823(16), 5.227(20), 3.411(13), 3.056(22), 3.034(17), 2.950(16), 2.559(20)

Type material is deposited in the mineralogical collections of the Museo delle Collezioni di Mineralogia, Gemmologia, Petrologia e Giacimentologia, Dipartimento di Scienze della

Terra "A. Desio", Università di Milano, catalogue number MCMGPG-H2018-002

How to cite: Cámara, F., Nestola, F., Ciriotti, M. E., Kolitsch, U., Merlini, M., Blass, G. and Wartha, R. (2018) Escheite, IMA 2018-099. CNMNC Newsletter No. 46, December 2018, page 1375; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-100

Uroxite



Burro mine, Slick Rock district, San Miguel Co., Colorado, USA (38°2'42"N, 108°53'23"W); Markey mine, Red Canyon, White Canyon mining district, San Juan Co., Utah, USA (37°32'57"N, 110°18'08"W)

Anthony R. Kampf\*, Jakub Plášil, Barbara P. Nash, Ivan Němec and Joe Marty

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

Oxalate mineral group

Monoclinic:  $P2_1/c$ ; structure determined

$a = 5.5698(2)$ ,  $b = 15.2877(6)$ ,  $c = 13.3724(9)$  Å,  $\beta = 94.015(7)^\circ$

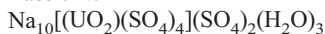
10.05(38), 5.00(100), 4.75(23), 4.43(51), 3.567(33), 3.341(29), 3.271(20), 2.623(28)

Cotype material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue numbers 73514 and 73515 (Burro mine), 73516 and 73517 (Markey mine)

How to cite: Kampf, A.R., Plášil, J., Nash, B.P., Němec, I. and Marty, J. (2018) Uroxite, IMA 2018-100. CNMNC Newsletter No. 46, December 2018, page 1376; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-101

Lussierite



Blue Lizard mine, Red Canyon, White Canyon mining district, San Juan Co., Utah, USA (37°33'26"N, 110°17'44"W)

Anthony R. Kampf\*, Travis Olds, Jakub Plášil, Barbara P. Nash and Joe Marty

\*E-mail: [akampf@nhm.org](mailto:akampf@nhm.org)

New structure type

Monoclinic:  $Cc$ ; structure determined

$a = 9.3134(4)$ ,  $b = 28.750(1)$ ,  $c = 9.6346(7)$  Å,  $\beta = 93.442(7)^\circ$

8.00(63), 6.69(95), 5.75(68), 4.814(100), 3.461(83), 2.955(81), 2.882(74), 2.799(58)

Type material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue numbers 73518 (holotype), 73519 and 73520 (cotype)

How to cite: Kampf, A.R., Olds, T., Plášil, J., Nash, B.P. and Marty, J. (2018) Lussierite, IMA 2018-101. CNMNC Newsletter No. 46, December 2018, page 1376; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-102

Asimowite



Suizhou L6 chondrite, fall in Dayanpo, 12.5 km SE of Suizhou, Hubei province, China (holotype); Quebrada Chimborazo (QC) 001 CB3.0 chondrite, found in Antofagasta, Chile (cotype)

Luca Bindi\*, Frank E. Brenker, Fabrizio Nestola, Tamara E. Koch, David J. Prior, Kat Lilly, Alexander N. Krot, Martin Bizzarro and Xiande Xie

\*E-mail: [luca.bindi@unifi.it](mailto:luca.bindi@unifi.it)

The Fe analogue of wadsleyite

Orthorhombic: *Imma*; structure determined

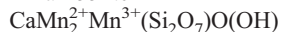
$a = 5.7485(4)$ ,  $b = 11.5761(9)$ ,  $c = 8.3630(7)$  Å  
2.708(50), 2.650(70), 2.506(40), 2.471(100), 2.220(40), 2.088(50), 2.036(90), 1.460(90)

Type material is deposited in the mineralogical collections of the Museo di Storia Naturale, Università di Firenze, Via La Pira 4, I-50121, Firenze, Italy, catalogue number 3238/I (holotype), and the Goethe University Frankfurt, Germany (cotype)

How to cite: Bindi, L., Brenker, F.E., Nestola, F., Koch, T.E., Prior, D.J., Lilly, K., Krot A.N., Bizzarro, M. and Xie, X. (2018) Asimowite, IMA 2018-102. CNMNC Newsletter No. 46, December 2018, page 1376; *Mineralogical Magazine*, **82**, 1369–1379.

#### IMA No. 2018-105

Amamoorite



Amamoor mine, near Gympie, Southern Queensland, Australia

Roger Townend, Ian E. Grey\*, W. Gus Mumme, Anthony R. Kampf, Malcolm Roberts, Robert W. Gable and Rodney Dale

\*E-mail: [ian.grey@csiro.au](mailto:ian.grey@csiro.au)



The Mn<sup>2+</sup>-Mn<sup>3+</sup>-dominant analogue of ilvaite  
Monoclinic:  $P2_1/a$ ; structure determined

$a = 13.0981(2)$ ,  $b = 8.8897(2)$ ,  $c = 5.9029(1)$  Å,  
 $\beta = 91.697(2)^\circ$

7.349(76), 2.893(100), 2.827(48), 2.754(50),  
2.725(50), 2.699(66), 2.157(33), 2.100(35)

Type material is deposited in the mineralogical  
collections of the Western Australian Museum,  
catalogue number WAM M8.2018, and the  
Natural History Museum of Los Angeles  
County, 900 Exposition Boulevard, Los  
Angeles, CA 90007, USA, catalogue number  
66937

How to cite: Townend, R., Grey, I.E., Mumme, W.  
G., Kampf, A.R., Roberts, M., Gable, R.W. and  
Dale, R. (2018) Amamoorite, IMA 2018-105.  
CNMNC Newsletter No. 46, December 2018,  
page 1376; *Mineralogical Magazine*, **82**, 1369–  
1379.

#### IMA No. 2018-106

Ferriperbœite-(La)

$(CaLa_3)(Fe^{3+}Al_2Fe^{2+})[Si_2O_7][SiO_4]_3O(OH)_2$

Mochalin Log *REE* deposit, 14 km N of the city  
of Kyshtym, Chelyabinsk Oblast', South Urals,  
Russia (55°48'42"N, 60°33'46"E)

Anatoly V. Kasatkin\*, Igor V. Pekov, Natalia  
V. Zubkova, Nikita V. Chukanov, Radek Škoda,  
Yury S. Polekhovskiy, Dmitriy I. Belakovskiy,  
Atali A. Agakhanov, Aleksey M. Kuznetsov and  
Dmitry Y. Pushcharovskiy

\*E-mail: [anatoly.kasatkin@gmail.com](mailto:anatoly.kasatkin@gmail.com)

Gatelite supergroup

Monoclinic:  $P2_1/m$ ; structure determined

$a = 8.9458(2)$ ,  $b = 5.7297(1)$ ,  $c = 17.6192(3)$  Å,  
 $\beta = 115.950(2)^\circ$

15.81(72), 4.700(43), 3.521(53), 3.003(100),  
2.868(39), 2.775(28), 2.687(33), 2.636(60)

Type material is deposited in the collections of the  
Fersman Mineralogical Museum, Russian  
Academy of Sciences, Leninskiy Prospekt 18-2,  
Moscow 119071, Russia, registration number  
5253/1

How to cite: Kasatkin, A.V., Pekov, I.V., Zubkova,  
N.V., Chukanov, N.V., Škoda, R., Polekhovskiy, Y.  
S., Belakovskiy, D.I., Agakhanov, A.A.,  
Kuznetsov, A.M. and Pushcharovskiy, D.Y.  
(2018) Ferriperbœite-(La), IMA 2018-106.  
CNMNC Newsletter No. 46, December 2018,  
page 1377; *Mineralogical Magazine*, **82**, 1369–  
1379.

#### IMA No. 2018-107

Radekškodaite-(La)

$(CaLa_5)(Al_4Fe^{2+})[Si_2O_7][SiO_4]_5O(OH)_3$

Mochalin Log *REE* deposit, 14 km N of the city  
of Kyshtym, Chelyabinsk Oblast', South Urals,  
Russia (55°48'42"N, 60°33'46"E)

Anatoly V. Kasatkin\*, Igor V. Pekov, Natalia  
V. Zubkova, Nikita V. Chukanov, Yury  
S. Polekhovskiy, Dmitriy I. Belakovskiy, Dmitriy  
A. Ksenofontov, Atali A. Agakhanov, Aleksey  
M. Kuznetsov and Dmitry Y. Pushcharovskiy

\*E-mail: [anatoly.kasatkin@gmail.com](mailto:anatoly.kasatkin@gmail.com)

New structure type

Monoclinic:  $P2_1/m$ ; structure determined

$a = 8.9604(3)$ ,  $b = 5.7268(2)$ ,  $c = 25.113(1)$  Å,  
 $\beta = 116.627(5)^\circ$

22.1(52), 8.01(32), 4.661(65), 3.522(78), 3.038  
(55), 3.010(45), 2.866(44), 2.640(100)

Type material is deposited in the collections of the  
Fersman Mineralogical Museum, Russian  
Academy of Sciences, Leninskiy Prospekt 18-2,  
Moscow 119071, Russia, registration number  
5267/1

How to cite: Kasatkin, A.V., Pekov, I.V., Zubkova,  
N.V., Chukanov, N.V., Polekhovskiy, Y.S.,  
Belakovskiy, D.I., Ksenofontov, D.A.,  
Agakhanov, A.A., Kuznetsov, A.M. and  
Pushcharovskiy, D.Y. (2018) Radekškodaite-  
(La), IMA 2018-107. CNMNC Newsletter No.  
46, December 2018, page 1377; *Mineralogical  
Magazine*, **82**, 1369–1379.

#### IMA No. 2017-009b

Laverovite

$K_2NaMn_7Zr_2(Si_4O_{12})_2O_2(OH)_4F$

Desourdy quarry, which later became part of the  
Demix quarry, which in turn was subsumed by the  
Poudrette quarry, Mont Saint-Hilaire, La Vallée-  
du-Richelieu RCM, Montérégie, Québec, Canada  
Elena Sokolova\*, Maxwell C. Day, Frank  
C. Hawthorne, Anatoly V. Kasatkin, Robert  
A. Downs, László Horváth and Elsa Pfenninger-  
Horváth

\*E-mail: [elena\\_sokolova@umanitoba.ca](mailto:elena_sokolova@umanitoba.ca)

Astrophyllite supergroup

Triclinic:  $P\bar{1}$ ; structure determined

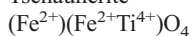
$a = 5.4329(1)$ ,  $b = 11.9232(3)$ ,  $c = 11.7491(3)$  Å,  
 $\alpha = 112.905(2)$ ,  $\beta = 94.696(1)$ ,  $\gamma = 103.178(1)^\circ$   
10.625(100), 3.542(92), 2.788(97), 2.680  
(68), 2.589(100), 2.504(44), 1.776(39), 1.589  
(50)

Type material is deposited in the mineralogical collections of Royal Ontario Museum, Toronto, Ontario, Canada, accession number M57542

How to cite: Sokolova, E., Day, M.C., Hawthorne, F.C., Kasatkin, A.V., Downs, R.A., Horváth, L. and Pfenninger-Horváth, E. (2018) Laverovite, IMA 2017-009b. CNMNC Newsletter No. 46, December 2018, page 1377; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2017-032a**

Tschaunerite



Shergotty Martian meteorite, fall at Shergotty, Gaya district, Bihar, India

Chi Ma\* and Vitali Prakapenka

\*E-mail: [chi@gps.caltech.edu](mailto:chi@gps.caltech.edu)

A polymorph of ulvöspinel

Orthorhombic: *Cmcm*

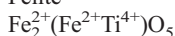
$a = 2.71(2)$ ,  $b = 9.216(8)$ ,  $c = 9.103(4)$  Å  
2.534(100), 2.498(25), 2.304(27), 2.256(31), 1.983(63), 1.855(33), 1.49(37), 1.194(19)

Type material is deposited in the E. Stolper Martian Meteorite Collection of the Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125, USA, thin section Shergotty-1

How to cite: Ma, C. and Prakapenka, V. (2018) Tschaunerite, IMA 2017-032a. CNMNC Newsletter No. 46, December 2018, page 1378; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2017-041a**

Feiite



Shergotty Martian meteorite, fall at Shergotty, Gaya district, Bihar, India

Chi Ma\* and Oliver Tschauner

\*E-mail: [chi@gps.caltech.edu](mailto:chi@gps.caltech.edu)

Isostructural with synthetic  $\text{Fe}_4\text{O}_5$

Orthorhombic: *Cmcm*

$a = 2.90(3)$ ,  $b = 10.25(20)$ ,  $c = 12.50(8)$  Å  
2.668(100), 2.562(29), 2.548(34), 2.177(37), 2.084(65), 1.953(21), 1.669(26), 1.499(28)

Type material is deposited in the E. Stolper Martian Meteorite Collection of the Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125, USA, thin section Shergotty-1

How to cite: Ma, C. and Tschauner, O. (2018) Feiite, IMA 2017-041a. CNMNC Newsletter No.

46, December 2018, page 1378; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2017-042a**

Liuite



Shergotty Martian meteorite, fall at Shergotty, Gaya district, Bihar, India

Chi Ma\* and Oliver Tschauner

\*E-mail: [chi@gps.caltech.edu](mailto:chi@gps.caltech.edu)

A polymorph of ilmenite

Orthorhombic: *Pnma*

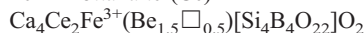
$a = 5.32(1)$ ,  $b = 6.840(5)$ ,  $c = 5.037(3)$  Å  
3.225(20), 2.660(23), 2.518(25), 2.498(100), 1.829(27), 1.710(19), 1.625(22), 1.450(37)

Type material is deposited in the E. Stolper Martian Meteorite Collection of the Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125, USA, thin section Shergotty-1

How to cite: Ma, C. and Tschauner, O. (2018) Liuite, IMA 2017-042a. CNMNC Newsletter No. 46, December 2018, page 1378; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2017-087a**

Ferri-mottanaite-(Ce)



Vico volcanic complex, Tre Croci, close to Vetralla (Viterbo), Latium, Italy

Roberta Oberti\*, Antonio Langone, Massimo Boiocchi, Frank C. Hawthorne and Ezio Bernabè

\*E-mail: [oberti@crystal.unipv.it](mailto:oberti@crystal.unipv.it)

Hellandite group

Monoclinic: *P2/a*; structure determined

$a = 19.0548(9)$ ,  $b = 4.7468(2)$ ,  $c = 10.2560(5)$  Å,  
 $\beta = 110.906(2)^\circ$

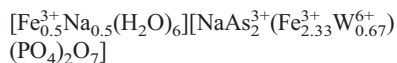
4.745(33), 3.453(36), 3.246(43), 3.086(44), 2.919(44), 2.857(50), 2.648(100), 1.904(48)

Type material is deposited in the collections of the Museo di Mineralogia, Dipartimento di Scienze della Terra e dell'Ambiente, Università di Pavia, catalogue number 2018-02

How to cite: Oberti, R., Langone, A., Boiocchi, M., Hawthorne, F.C. and Bernabè, E. (2018) Ferri-mottanaite-(Ce), IMA 2017-087a. CNMNC Newsletter No. 46, December 2018, page 1378; *Mineralogical Magazine*, **82**, 1369–1379.

**IMA No. 2018-032a**

Natrowalentaite



Griffins Find gold deposit, ca. 15 km NW of Lake Grace, Australia

Ian E. Grey\*, W. Gus Mumme, Anthony R. Kampf and Colin M. MacRae

\*E-mail: [ian.grey@csiro.au](mailto:ian.grey@csiro.au)

Chemically and structurally related to walentaite  
Orthorhombic: *Imma*; structure determined  
 $a = 25.770(3)$ ,  $b = 7.3250(8)$ ,  $c = 10.522(1)$  Å  
12.95(100), 9.72(9), 6.72(14), 4.41(10), 3.020  
(27), 2.940(15), 2.759(11), 1.784(10)

Type material is deposited in the mineralogical collections of the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 66703

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## REVISED CHEMICAL FORMULAE

A paper on the mineral vigrishinite has been recently published [*Mineralogical Magazine*, **82** (2018), 787–807] in which the ideal chemical formula of the mineral is given as  $\text{NaZnTi}_4(\text{Si}_2\text{O}_7)_2\text{O}_3(\text{OH})(\text{H}_2\text{O})_4$ , with sodium as an essential constituent. These data were examined carefully by the CNMNC officers and were considered reliable. Accordingly it was agreed to modify the formula of vigrishinite in the official IMA List of Minerals.

A paper on the mineral cafarsite has been recently published [*European Journal of Mineralogy*, **30** (2018), 859–868] in which the ideal chemical formula of the mineral is revised as  $(\text{Ca},\text{Na},\square)_{19}\text{Ti}_8\text{Fe}_4^{3+}\text{Fe}_4^{2+}(\text{AsO}_3)_{28}\text{F}$ , with no water molecules or hydroxyls, and with fluorine as an essential constituent. These data were examined carefully by the CNMNC officers and were considered reliable. Accordingly it was agreed to modify the formula of cafarsite in the official IMA List of Minerals.