



IMA Commission on New Minerals, Nomenclature and Classification (CNMNC) – Newsletter 64

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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 (ideal formula);
- mineral symbol;
- 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 X-ray powder 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 *European Journal of Mineralogy* on a routine basis, as well as being added month by month to the commission's website. 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.

1 New mineral proposals approved in October 2021

IMA no. 2021-055

Ferrotorryweiserite

$\text{Rh}_5\text{Fe}_{10}\text{S}_{16}$

Ftyw

Sisim placer zone, Krasnoyarskiy Kray, central Siberia, southwestern Eastern Sayans, Russia (54°44'58" N, 93°09'08" E)

Andrei Y. Barkov*, Nadezhda D. Tolstykh, Nobumichi Tamura, Robert F. Martin, Andrew M. McDonald, and Louis J. Cabri

*E-mail: ore-minerals@mail.ru

The Fe analogue of torryweiserite

Trigonal: $R\bar{3}m$

$a = 7.069(2)$, $c = 34.286(11)$ Å

5.765(39), 5.714(61), 3.049(39), 2.795(100), 2.596(38), 1.767(44), 1.524(9), 1.503(35)

Type material is deposited in the mineralogical collections of the Central Siberian Geological Museum, Sobolev Institute

of Geology and Mineralogy, Akademik Koptyug Avenue, no. 3, 630090 Novosibirsk, Russia, catalogue number III-102/3
How to cite: Barkov, A. Y., Tolstykh, N. D., Tamura, N., Martin, R. F., McDonald, A. M., and Cabri, L. J.: Ferrotorrey-weiserite, IMA 2021-055, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-060

Mikecoxite
[CHg₄]OCl₂
Mcx

McDermitt open-pit mine, eastern margin of the McDermitt Caldera, Humboldt Co., Nevada, USA (41°55′11.5″ N, 117°48′45.8″ W)

Mark A. Cooper, Gail E. Dunning, Frank C. Hawthorne*, Chi Ma, Anthony R. Kampf, John Spratt, Christopher J. Stanley, and Andrew G. Christy

*E-mail: frank.hawthorne@umanitoba.ca

New structure type

Monoclinic: $P2_1/n$; structure determined

$a = 10.164(5)$, $b = 10.490(4)$, $c = 6.547(3)$ Å, $\beta = 90.04(1)^\circ$
5.49(34), 4.65(32), 2.989(81), 2.884(100), 2.673(79), 2.300(30), 2.045(30), 1.744(40)

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 76196 (holotype) and 76197 (cotype)

How to cite: Cooper, M. A., Dunning, G. E., Hawthorne, F. C., Ma, C., Kampf, A. R., Spratt, J., Stanley, C. J., and Christy, A. G.: Mikecoxite, IMA 2021-060, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-066

Lepersonnite-(Nd)
Lps-Nd

Nd₄(UO₂)₂₄(SiO₄)₄(CO₃)₈(OH)₂₈•48H₂O

Swambo deposit, 36 km west of Shinkolobwe, near Mindigi Mine, Kambove District, Haut-Katanga, Democratic Republic of the Congo (11°05′43″ S, 26°13′23″ E)

Jakub Plášil*, Anthony R. Kampf, Radek Škoda, Simon Philippo, Mael Guennou, and Florias Mees

*E-mail: plasil@fzu.cz

The Nd analogue of lepersonnite-(Gd)

Orthorhombic: $Pnmm$ or $Pnn2$

$a = 16.13(1)$, $b = 38.91(3)$, $c = 11.765(6)$ Å
8.16(100), 3.66(57), 3.20(33), 3.11(21), 3.01(21), 2.86(22), 1.956(20), 1.902(23)

Cotype material is deposited in the mineralogical collections of the Musée d'Histoire Naturelle, 25 rue Münster, L-2160 Luxembourg, Luxembourg, specimen no. WPV020, and the

Royal Museum for Central Africa, Leuvensesteenweg 13, 3080 Tervuren, Belgium, specimen no. RGM11529.1

How to cite: Plášil, J., Kampf, A. R., Škoda, R., Philippo, S., Guennou, M., and Mees, F.: Lepersonnite-(Nd), IMA 2021-066, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-067

Reznitskyite
CaMg(VO₄)F
Rzs

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 a.s.l.)

Natalia N. Koshlyakova*, Igor V. Pekov, Marina F. Vigasina, Natalia V. Zubkova, Atali A. Agakhanov, Sergey N. Britvin, Evgeny G. Sidorov, and Dmitry Y. Pushcharovsky

*E-mail: nkoshlyakova@gmail.com

The V analogue of tilasite

Monoclinic: $C2/c$; structure determined

$a = 6.6912(7)$, $b = 8.9395(7)$, $c = 7.0587(8)$ Å,
 $\beta = 113.08(1)^\circ$

3.686(26), 3.250(66), 3.082(100), 2.854(34), 2.683(33), 2.631(44), 2.531(25), 1.749(25)

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 5734/1

How to cite: Koshlyakova, N. N., Pekov, I. V., Vigasina, M. F., Zubkova, N. V., Agakhanov, A. A., Britvin, S. N., Sidorov, E. G., and Pushcharovsky, D. Y.: Reznitskyite, IMA 2021-067, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-068

Penriceite
[Mg(H₂O)₆][Na(H₂O)₂Al₃(PO₄)₂F₆]•H₂O
Prc

Penrice marble quarry, 2 km north of Angaston, Barossa Valley, South Australia, Australia (34°28′54″ S, 139°02′48″ E)

Peter Elliott, Ian E. Grey*, Colin M. Macrae, Anthony R. Kampf, and Cameron Davidson

*E-mail: ian.grey@csiro.au

The F-dominant analogue of aldermanite

Monoclinic: $P2_1/c$; structure determined

$a = 13.478(3)$, $b = 9.971(2)$, $c = 6.999(1)$ Å, $\beta = 97.20(3)^\circ$
13.39(100), 8.00(30), 5.718(12), 5.562(26), 3.284(4), 3.004(5), 2.855(16), 2.782(15)

Type material is deposited in the mineralogical collections of the Museum of South Australia, North Terrace, Adelaide

5000, South Australia, Australia, catalogue number G32227 (holotype), and the Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, CA 90007, USA, catalogue number 76158 (cotype)

How to cite: Elliott, P., Grey, I. E., Macrae, C. M., Kampf, A. R., and Davidson, C.: Penriceite, IMA 2021-068, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-069

Matthiasweilite

$\text{PbTe}^{4+}\text{O}_3$

Mtw

On a dump of the Delamar Mine, Delamar District, Lincoln Co., Nevada, USA (37°27'45" N, 114°46'08" W)

Anthony R. Kampf*, Owen P. Missen, Stuart J. Mills, Chi Ma, Robert M. Housley, Marek Chorazewicz, Joe Marty, and Mark Coolbaugh

*E-mail: akampf@nhm.org

A dimorph of plumbotellurite

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

$a = 7.0256(4)$, $b = 10.6345(6)$, $c = 11.9965(8)$ Å,
 $\alpha = 78.513(6)$, $\beta = 83.104(6)$, $\gamma = 84.083(6)^\circ$

3.270(77), 3.146(100), 3.010(28), 2.815(33), 2.564(18), 1.952(31), 1.784(18), 1.667(18)

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 76156 (holotype) and 76157 (cotype), and the Museums Victoria, GPO Box 666, Melbourne 3001, Victoria, Australia, specimen number M55535 (cotype)

How to cite: Kampf, A. R., Missen, O. P., Mills, S. J., Ma, C., Housley, R. M., Chorazewicz, M., Marty, J., and Coolbaugh, M.: Matthiasweilite, IMA 2021-069, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-070

Jingwenite-(Y)

$\text{YAlV}^{4+}(\text{SiO}_4)\text{O}_2(\text{OH})_2$

Jw-Y

Yushui Cu polymetallic deposit, about 16 km northeast of Meizhou City, Guangdong Province, China (24°25'30" N, 116°10'45" E)

Peng Liu, Xiangping Gu*, Wenlan Zhang, Huan Hu, Xiaodan Chen, Wenlei Song, Xiaolin Wang, Miao Yu, and Nigel J. Cook

*E-mail: guxp2004@163.com

New structure type

Monoclinic: $I2/a$; structure determined

$a = 9.4821(2)$, $b = 5.8781(1)$, $c = 19.3987(4)$ Å,
 $\beta = 90.165(2)^\circ$
9.73(58), 5.011(62), 4.274(36), 3.636(30), 3.216(51), 2.676(100), 2.582(95), 2.049(82)

Type material is deposited in the mineralogical collections of the Geological Museum of China, no. 16, Yangrou Hutong, Xisi, Beijing 100031, People's Republic of China, catalogue number M16122

How to cite: Liu, P., Gu, X., Zhang, W., Hu, H., Chen, X., Song, W., Wang, X., Yu, M., and Cook, N. J.: Jingwenite-(Y), IMA 2021-070, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

2 New mineral proposals approved in November 2021

IMA no. 2021-004

Paulgrothite

$\text{Cu}_9\text{Fe}^{3+}\text{O}_4(\text{PO}_4)_4\text{Cl}_3$

Plgr

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 a.s.l.)

Oleg I. Siidra*, Evgeny V. Nazarchuk, Leonid A. Pautov, Artem S. Borisov, Anatoly N. Zaitsev, Evgeniya Y. Avdontseva, and Vladimir N. Bocharov

*E-mail: o.siidra@spbu.ru

New structure type

Orthorhombic: $Cmc2_1$; structure determined

$a = 5.90(1)$, $b = 15.66(4)$, $c = 17.33(4)$ Å
5.317(18), 4.667(24), 3.561(37), 3.236(17), 2.909(100), 2.452(65), 2.358(15), 2.347(26)

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 5595/1

How to cite: Siidra, O. I., Nazarchuk, E. N., Pautov, L. A., Borisov, A. S., Zaitsev, A. N., Avdontseva, E. Y., and Bocharov, V. N.: Paulgrothite, IMA 2021-004, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-071

Stibioústalečite

 $\text{Cu}_6\text{Cu}_6(\text{Sb}_2\text{Te}_2)\text{Se}_{13}$

Súč

Ústaleč abandoned mine, 500 m northeast of the Ústaleč village, 15 km west of Horažďovice, south-western Bohemia, Czech Republic (49°19'14" N, 13°30'15" E)

Jiří Sejkora*, Jakub Plášil, and Emil Makovický

*E-mail: jiri.sejkora@nm.cz

Tetrahedrite group

Cubic: $I\bar{4}3m$; structure determined
 $a = 10.828(4) \text{ \AA}$

3.828(10), 3.126(100), 2.894(11), 2.552(9), 1.977(11), 1.914(71), 1.632(33), 1.353(9)

Type material is deposited in the mineralogical collections of the Department of Mineralogy and Petrology, National Museum in Prague, Cirkusová 1740, 19300 Prague 9, Czech Republic, catalogue number P1P 7/2021

How to cite: Sejkora, J., Plášil, J., and Makovický, E.: Stibioústalečite, IMA 2021-071, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-072

Redmondite

 $[\text{Pb}_8\text{O}_2\text{Zn}(\text{OH})_6](\text{S}_2\text{O}_3)_4$

Rdm

Redmond Mine, Haywood Co., North Carolina, USA (35°40'49" N, 83°01'07" W)

Anthony R. Kampf*, Jason B. Smith, John M. Hughes, Chi Ma, and Christopher Emproto

*E-mail: akampf@nhm.org

New structure type

Monoclinic: $P2_1/c$; structure determined
 $a = 9.1672(4)$, $b = 10.6576(4)$, $c = 14.062(1) \text{ \AA}$
 $\beta = 101.173(7)^\circ$

6.56(64), 5.01(32), 3.442(100), 3.173(32), 2.912(35), 2.847(42), 2.479(38), 2.280(27)

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 76160, 76161 and 76162

How to cite: Kampf, A. R., Smith, J. B., Hughes, J. M., Ma, C., and Emproto, C.: Redmondite, IMA 2021-072, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-073

Hydroredmondite

 $[\text{Pb}_8\text{O}_2\text{Zn}(\text{OH})_6](\text{S}_2\text{O}_3)_4 \cdot 2\text{H}_2\text{O}$

Hrdm

Redmond Mine, Haywood Co., North Carolina, USA (35°40'49" N, 83°01'07" W)

Anthony R. Kampf*, Jason B. Smith, John M. Hughes, Chi Ma, and Christopher Emproto

*E-mail: akampf@nhm.org

New structure type

Monoclinic: $P2_1/n$; structure determined
 $a = 12.5991(9)$, $b = 9.2819(4)$, $c = 12.9774(9) \text{ \AA}$
 $\beta = 90.443(6)^\circ$

9.05(29), 6.49(100), 4.83(34), 3.638(46), 3.017(52), 2.825(40), 2.794(27), 2.729(32)

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 76163, 76164, 76165 and 76166

How to cite: Kampf, A. R., Smith, J. B., Hughes, J. M., Ma, C., and Emproto, C.: Hydroredmondite, IMA 2021-073, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-074

Pertoldite

 GeO_2

Pert

In the central part of a burning coal mine dump of the abandoned Kateřina Mine, east of Radvanice village, about 12 km east of Trutnov town, Hradec Králové region, Czech Republic (50°33'39.0" N, 16°03'56.2" E)

Vladimír Žáček*, Radek Škoda, František Laufek, Jiří Sejkora, and Jakub Haifler

*E-mail: vladimir.zacek@geology.cz

A dimorph of argutite

Trigonal: $P3_121$ or $P3_221$
 $a = 4.980(5)$, $c = 5.644(4) \text{ \AA}$

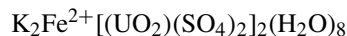
4.315(44), 3.425(100), 2.490(31), 2.360(41), 2.278(29), 1.867(31), 1.418(31), 1.412(37)

Type material is deposited in the collections of the Department of Mineralogy and Petrology, National Museum in Prague, Cirkusová 1740, 19300 Prague 9, Czech Republic, catalogue number P1P 31/2021

How to cite: Žáček, V., Škoda, R., Laufek, F., Sejkora, J., and Haifler, J.: Pertoldite, IMA 2021-074, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-075

Oldsite



Ods

North Mesa mine group, Temple Mountain, San Rafael District, Emery Co., Utah, USA

Jakub Plášil*, Anthony R. Kampf, Chi Ma, and Joy Desor

*E-mail: plasil@fzu.cz

The Fe analogue of svornostite

Orthorhombic: $Pmn2_1$; structure determined

$a = 12.893(3)$, $b = 8.276(2)$, $c = 11.239(2)$ Å

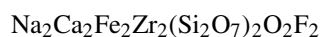
8.29(59), 6.47(82), 5.10(62), 4.65(100), 3.332(55), 3.020(63), 2.670(51), 2.106(56)

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 76159

How to cite: Plášil, J., Kampf, A. R., Ma, C., and Desor, J.: Oldsite, IMA 2021-075, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-077

Madeiraite



Mde

Terra do Batista gabbro outcrop, Porto da Cruz, Machico, Madeira, Portugal (32°46'01" N, 16°50'29" W); Serrado gabbro outcrop, Porto da Cruz, Machico, Madeira, Portugal (32°45'30" N, 16°49'41" W)

Stuart J. Mills*, Fabrice Dal Bo, Pedro Alves, Henrik Friis, and Owen P. Missen

*E-mail: smills@museum.vic.gov.au

Wöhlerite group

Monoclinic: $P2_1/a$; structure determined

$a = 10.880(1)$, $b = 10.0442(7)$, $c = 7.2250(7)$ Å,
 $\beta = 108.78(1)^\circ$

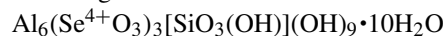
6.780(26), 4.007(22), 3.243(37), 2.928(84), 2.839(100), 1.807(23), 1.775(24), 1.524(23)

Type material is deposited in the mineralogical collections of the Museums Victoria, GPO Box 666, Melbourne, Victoria 3001, Australia, registration number M55555 (holotype), and the Natural History Museum, University of Oslo, P.O. Box 1172, Blindern, 0318 Oslo, Norway registration number KNR 44332 (cotype)

How to cite: Mills, S. J., Dal Bo, F., Alves, P., Friis, H., and Missen, O. P.: Madeiraite, IMA 2021-077, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-079

Petermegawite



Pmw

El Dragón Mine, Antonio Quijarro Province, Potosí Department, Bolivia (19°49'15" S, 65°55'00" W)

Hexiong Yang*, Xiangping Gu, Robert A. Jenkins, Ronald B. Gibbs, James A. McGlasson, and Michael M. Scott

*E-mail: hyang@arizona.edu

New structure type

Orthorhombic: $Cmc2_1$; structure determined

$a = 16.2392(2)$, $b = 10.9637(1)$, $c = 15.3367(2)$ Å

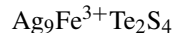
7.824(100), 7.642(88), 5.839(53), 5.580(83), 5.514(88), 4.860(67), 4.496(49), 3.017(81)

Type material is deposited in the collections of the University of Arizona Mineral Museum, 1040 E 4th Street, Tucson, AZ 85721-0077, USA, catalogue no. 22711 (holotype), and the RRUFF Project, deposition no. R210008 (cotype)

How to cite: Yang, H., Gu, X., Jenkins, R. A., Gibbs, R. B., McGlasson, J. A., and Scott, M. M.: Petermegawite, IMA 2021-079, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-080

Xuwenyuanite



Xuw

Bajiazhi lead–zinc deposit, about 310 km southwest of Shenyang City, Jianchang County, Liaoning Province, China (40°35'30" N, 120°02'16" E)

Xiangping Gu*, Ziping Wang, and Wenfeng Zhu

*E-mail: guxp2004@163.com

A dimorph of chenguodaite

Cubic: $F\bar{4}3m$; structure determined

$a = 11.0732(2)$ Å

6.409(100), 3.338(52), 3.191(79), 2.762(70), 2.254(73), 2.126(88), 1.952(59), 1.303(15)

Type material is deposited in the mineralogical collections of the Geological Museum of China, no. 16, Yangrou Hutong, Xisi, Beijing 100031, People's Republic of China, catalogue number M16128

How to cite: Gu, X., Wang, Z., and Zhu, W.: Xuwenyuanite, IMA 2021-080, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.

IMA no. 2021-040a

Bortolanite

 $\text{Ca}_2(\text{Ca}_{1.5}\text{Zr}_{0.5})\text{Na}(\text{NaCa})\text{Ti}(\text{Si}_2\text{O}_7)_2(\text{OF})\text{F}_2$

Btln

Bortolan Quarry, Poços de Caldas massif, Minas Gerais, Brazil (21°46'38" S, 46°37'58" W)

Maxwell C. Day, Elena Sokolova*, Frank C. Hawthorne, László Horváth, and Elsa Pfenninger-Horváth

*E-mail: elena_sokolova@umanitoba.ca

Seidozerite supergroup

Triclinic: $P\bar{1}$; structure determined $a = 9.615(3)$, $b = 5.725(2)$, $c = 7.316(2)$ Å, $\alpha = 89.91(1)$, $\beta = 101.14(1)$, $\gamma = 100.91(1)^\circ$

3.086(61), 2.975(100), 2.844(21), 2.639(30), 2.510(24),

1.908(31), 1.829(26), 1.704(22)

Type material is deposited in the mineralogical collections of the Canadian Museum of Nature, 240 McLeod St, Ottawa, ON K2P 2R1, Canada, registration number CMNMC 88727

How to cite: Day, M. C., Sokolova, E., Hawthorne, F. C., Horváth, L., and Pfenninger-Horváth, E.: Bortolanite, IMA 2021-040a, in: CNMNC Newsletter 64, Eur. J. Mineral., 34, <https://doi.org/10.5194/ejm-34-1-2022>, 2022.**3 Nomenclature/classification proposals approved in November 2021****3.1 IMA 21-G: hiärneite: crystal structure, chemical formula and classification**

Proposal 21-G is accepted, and based on SCXRD data the formula of hiärneite is revised from $(\text{Ca}, \text{Na}, \text{Mn}^{2+})_2(\text{Zr}, \text{Mn}^{3+})_5(\text{Sb}, \text{Ti}, \text{Fe}^{3+})_2\text{O}_{16}$ to $\text{Ca}_2\text{Zr}_4\text{Mn}^{3+}\text{SbTiO}_{16}$. Hiärneite belongs to the calzirtite group of minerals, which also includes calzirtite $[\text{Ca}_2\text{Zr}_5\text{Ti}_2\text{O}_{16}]$ and the structurally related cubic mineral tazheranite $[(\text{Zr}, \text{Ti}, \text{Ca})(\text{O},)_2]$.

3.2 IMA 21-H: redefinition of bixbyite and definition of bixbyite-(Fe) and bixbyite-(Mn)

Proposal 21-H is accepted. The name “bixbyite” becomes a series name for material with a bixbyite structure, space group $Ia\bar{3}$, and Fe^{3+} or Mn^{3+} as the dominant trivalent cation (it also includes the orthorhombic polytype of Mn_2O_3 , with space group $Pcab$). Bixbyite-(Fe) is defined as the Fe^{3+} dominant part of the series, with an ideal formula $(\text{Fe}, \text{Mn})_2\text{O}_3$, and bixbyite-(Mn) is defined as the Mn^{3+} dominant part of the series, with an ideal formula Mn_2O_3 .