### APPENDIX VI: REJECTED, REDEFINED AND RENAMED END-MEMBERS

|  |  |  |
| --- | --- | --- |
| **End-member formula** | **IMA(1997, 2003)** | **New scheme** |
|  |  |  |
| Na Mg2 Mg5 (Si7 Al) O22 (OH)2 | Sodicanthophyllite | Rootname 1 |
| Na Fe2+2 Fe2+5 (Si7 Al) O22 (OH)2 | Sodic-ferro-anthophyllite | Ferro-rootname 1 |
| Na Mg2 (Mg4 Al) (Si6 Al2) O22 (OH)2 | Sodicgedrite | —— |
| Na Mg2 (Mg3 Al2) (Si5 Al3) O22 (OH)2 | —— | Rootname 2 |
| Na Fe2+2 (Fe2+3Al2) (Si5Al3) O22 (OH)2 | —— | Ferro-rootname 2 |
| 🞎 Fe2+2 Fe2+5 Si8 O22 (OH)2 | Grunerite | Grunerite |
| 🞎 Mn2+2 Mg5 Si8 O22 (OH)2 | Manganocummingtonite | Rootname 3 |
| 🞎 Mn2+2 Fe2+5 Si8 O22 (OH)2 | Manganogrunerite | Ferro-rootname 3 |
| 🞎 Mn2+ 2 (Mn2+ 2 Mg3) Si8 O22 (OH)2 | Permanganocummingtonite | ——  |
| 🞎 Mn2+2 (Mn2+2 Fe2+2) Si8 O22 (OH)2 | Permanganogrunerite | ——  |
| 🞎 Mn2+2 Mn2+ 5 Si8 O22 (OH)2 |  —— | Mangano-rootname 3 |
|  |  |  |
| 🞎 Ca2 [Mg4 (Al,Fe3+)] (Si7 Al) O22 (OH)2 | Magnesiohornblende | —— |
| 🞎 Ca2 (Mg4 Al) (Si7 Al) O22 (OH)2 | —— | Magnesio-hornblende |
| 🞎 Ca2 [Fe2+4 (Al,Fe3+)] (Si7 Al) O22 (OH)2 | Ferrohornblende | —— |
| 🞎 Ca2 (Mg4 Fe3+) (Si7 Al) O22 (OH)2 | —— | Ferri-hornblende |
| 🞎 Ca2 (Fe2+4 Al) (Si7 Al) O22 (OH)2 | —— | Ferro-hornblende |
| 🞎 Ca2 (Fe2+4 Fe3+) (Si7 Al) O22 (OH)2 | —— | Ferro-ferri-hornblende |
| 🞎 Ca2 [Mg3 Al Fe3+] (Si6 Al2) O22 (OH)2 | Tschermakite | ——  |
| 🞎 Ca2 (Mg3 Al2) (Si6 Al2) O22 (OH)2 | Aluminotschermakite | Tschermakite |
| 🞎 Ca2 [Mg3 Fe3+2] (Si6 Al2) O22 (OH)2 | Ferritschermakite | Ferri-tschermakite |
| 🞎 Ca2 [Fe2+3 Al Fe3+] (Si6 Al2) O22 (OH)2 | Ferrotschermakite | ——  |
| 🞎 Ca2 (Fe2+3 Al2) (Si6 Al2) O22 (OH)2  | Alumino-ferrotschermakite | Ferro-tschermakite |
| 🞎 Ca2 (Fe2+3 Fe3+2) (Si6 Al2) O22 (OH)2 | Ferri-ferrotschermakite | Ferro-ferri-tschermakite |
| Na Ca2 (Mg4 Al) (Si6 Al2) O22 (OH)2 | Pargasite | Pargasite |
| Na Ca2 (Fe2+4 Al) (Si6 Al2) O22 (OH)2 | Ferropargasite | Ferro-pargasite |
| Na Ca2 (Mg4 Fe3+) (Si6 Al2) O22 (OH)2  | Magnesiohastingsite | Magnesio-hastingsite |
| Na Ca2 (Fe2+4 Fe3+) (Si6 Al2) O22 (OH)2  | Hastingsite | Hastingsite |
| Na Ca2 [Mg3 (Fe3+,Al)2] (Si5 Al3) O22 (OH)2 | Magnesiosadanagaite | ——  |
| Na Ca2 [Fe2+3 (Fe3+,Al)2] (Si5 Al3) O22 (OH)2 | Sadanagaite | ——  |
| Na Ca2 (Mg3 Al2) (Si5 Al3) O22 (OH)2  | —— | Sadanagaite  |
| Na Ca2 (Fe2+3 Al2) (Si5 Al3) O22 (OH)2 | —— | Ferro-sadanagaite |
| Na Ca2 (Mg3 Fe3+2) (Si5 Al3) O22 (OH)2 | —— | Ferri-sadanagaite |
| Na Ca2 (Fe2+3 Fe3+2) (Si5 Al3) O22 (OH) | —— | Ferro-ferri-sadanagaite |
| Na Ca2 (Mg4 Ti) (Si5 Al3) O22 (OH)2 | —— | Rootname 4 |
| Na Ca2 (Fe2+4 Ti) (Si5 Al3) O22 (OH)2 | —— | Ferro-rootname 4 |
|  |  |  |
| 🞎 (Na Ca) [Mg4 (Al,Fe3+)] Si8 O22 (OH)2 | Winchite | ——  |
| 🞎 (Na Ca) [Fe2+4 (Al,Fe3+)] Si8 O22 (OH)2 | Ferrowinchite | —— |
| 🞎 (Na Ca) (Mg4 Al) Si8 O22 (OH)2  | ——  | Winchite |
| 🞎 (Na Ca) (Mg4 Fe3+) Si8 O22 (OH)2 | ——  | Ferri-winchite |
| 🞎 (Na Ca) (Fe2+4 Al) Si8 O22 (OH)2 | ——  | Ferro-winchite |
| 🞎 (Na Ca) (Fe2+4 Fe3+) Si8 O22 (OH)2 | ——  | Ferro-ferri-winchite |
| 🞎 (Na Ca) (Mg3 Al Fe3+) (Si7 Al) O22 (OH)2 | Barroisite | —— |
| 🞎 (Na Ca) (Fe2+3 Al Fe3+) (Si7 Al) O22 (OH)2 | Ferrobarroisite | —— |
| 🞎 (Na Ca) (Mg3 Al2) (Si7 Al) O22 (OH)2 | Aluminobarroisite | Barroisite |
| 🞎 (Na Ca) (Mg3 Fe3+2) (Si7 Al) O22 (OH)2  | Ferribarroisite | Ferri-barroisite |
| 🞎 (Na Ca) (Fe2+3 Al2) (Si7 Al) O22 (OH)2 | Alumino-ferrobarroisite | Ferro-barroisite |
| 🞎 (Na Ca) (Fe2+3 Fe3+2) (Si7 Al) O22 (OH)2 | Ferri-ferrobarrosite | Ferro-ferri-barrosite |
| Na (Na Ca) [Mg4 (Al,Fe3+)] (Si7 Al) O22 (OH)2 | Magnesiokatophorite  | —— |
| Na (Na Ca) [Fe2+4 (Al,Fe3+)] (Si7 Al)O22(OH)2 | Katophorite | ——  |
| Na (Na Ca) (Mg4 Al) (Si7 Al) O22 (OH)2 | —— | Katophorite |
| Na (Na Ca) (Mg4 Fe3+) (Si7 Al) O22 (OH)2 | —— | Ferri-katophorite |
| Na (Na Ca) (Fe2+4 Al) (Si7 Al) O22 (OH)2 | —— | Ferro-katophorite |
| Na (Na Ca) (Fe2+4 Fe3+) (Si7 Al) O22 (OH)2 | —— | Ferro-ferri-katophorite |
| Na (Na Ca) (Mg3 Al Fe3+) (Si6 Al2) O22 (OH)2 | Magnesiotaramite | ——  |
| Na (Na Ca) (Fe2+3 Al Fe3+) (Si6 Al2) O22 (OH)2 | Taramite | —— |
| Na (Na Ca) (Mg3 Al2) (Si6 Al2) O22 (OH)2  | Alumino-magnesiotaramite | Taramite |
| Na (Na Ca) (Mg3 Fe3+2) (Si6 Al2) O22 (OH)2 | Ferri-magnesiotaramite | Ferri-taramite |
| Na (Na Ca) (Fe2+3 Al2) (Si6 Al2) O22 (OH)2 | Aluminotaramite | Ferro-taramite |
| Na (Na Ca) (Fe2+3 Fe3+2) (Si6 Al2) O22 (OH)2 | Ferritaramite | Ferro-ferri-taramite |
| All other sodium-calcium amphiboles are the same as in IMA1997 except for the hyphenation after the first prefix. |
| Na Na2 (Mg2 Al2 Li) Si8 O22 (OH)2 | Magnesio-aluminoleakeite | Leakeite |
| Na Na2 (Fe2+2 Al2 Li) Si8 O22 (OH)2 | Ferro-aluminoleakeite | Ferro-leakeite |
| Na Na2 (Mg2 Fe3+2 Li) Si8 O22 (OH)2 | Leakeite | Ferri-leakeite |
| Na Na2 (Fe2+2 Fe3+2 Li) Si8 O22 (OH)2 | Ferroleakeite | Ferro-ferri-leakeite |
| Na Na2 (Mg2 Al2 Li) Si8 O22 F2 | Fluoro-aluminoleakeite | Fluoro-leakeite |
| Na Na2 (Mg2 Fe3+2 Li) Si8 O22 F2 | Fluoroleakeite | Ferri-fluoro-leakeite |
| Na Na2 (Mg2 Mn3+2 Li) Si8 O22 (OH)2 | Sodic-kornite | Mangani-leakeite |
| K Na2 (Mg2 Mn3+2 Li) Si8 O22 (OH)2 | Kornite | Potassic-mangani-leakeite |
| Na Na2 (Mg3 Fe3+2) Si7 Al O22 (OH)2 | Ferric-nybøite | Ferri-nybøite |
| Na Na2 (Fe2+3 Fe3+2) Si7 Al O22 (OH)2 | Ferric-ferronybøite | Ferro-ferri-nybøite |
| 🞎 Na2 (Mg3 Fe3+2) Si8 O22 (OH)2 | Magnesioriebeckite | Magnesio-riebeckite |
| Na Na2 Mn2+4 (Al,Fe3+) Si8 O22 (OH)2  | Kozulite | —— |
| Na Na2 (Mn2+4 Fe3+) Si8 O22 (OH)2  | —— | Mangano-ferri-eckermannite |
| 🞎 Li2 (Fe2+3 Al2) Si8 O22 (OH)2 | Ferroholmquistite  | Ferro-holmquistite  |
| 🞎 Li2 (Mg3 Fe3+2) Si8 O22 (OH)2  | Ferriholmquistite  | Ferri-holmquistite  |
| 🞎 Li2 (Fe2+3 Fe3+2) Si8 O22 (OH)2 | Ferri-ferroholmquistite  | Ferro-ferri-holmquistite  |
| 🞎 Li2 (Mg3 Al2) Si8 O22 (OH)2  | Clinoholmquistite | Clino-holmquistite  |
| 🞎 Li2 (Fe2+3 Al2) Si8 O22 (OH)2 | Clino-ferroholmquistite | Clino-ferro holmquistite  |
| 🞎 Li2 (Mg3 Fe3+2) Si8 O22 (OH)2 | Clino-ferriholmquistite | Clino-ferri-holmquistite |
| 🞎 Li2 (Fe2+3 Fe3+2) Si8 O22 (OH)2  | Clino-ferri-ferroholmquistite | Clino-ferro-ferri-holmquistite |
| Na Li2 (Mg4 Al) Si8 O22 (OH)2  | —— | Rootname 5 |
| Na Li2 (Fe2+4 Al) Si8 O22 (OH)2  | —— | Ferro-rootname 5 |
|  |  |  |
| Na Li2 (Mg2 Al2 Li) Si8 O22 (OH)2 | Sodicpedrizite | Pedrizite  |
| Na Li2 (Fe2+2 Al2 Li) Si8 O22 (OH)2 | Sodic-ferropedrizite | Ferro-pedrizite |
| Na Li2 (Fe2+3 Al2 Li) Si8 O22 F2 | Fluoro-sodic-ferropedrizite | Ferro-fluoro-pedrizite |
| Na Li2 (Mg2 Fe3+2 Li) Si8 O22 (OH)2 | Sodic-ferripedrizite | Ferri-pedrizite  |
| Na Li2 (Fe2+2 Fe3+2 Li) Si8 O22 (OH)2 | Sodic-ferri-ferropedrizite | Ferro-ferri-pedrizite  |
|  |  |  |
| 🞎 (Na Li) (Mg3 Al2) Si8 O22 (OH)2  | Ottoliniite  | ——  |
| Na (Na Li) (Mg2 Al2Li) Si8 O22 (OH)2 | Whittakerite  | ——  |
| 🞎 (Na Li) (Mg3 Fe3+2) Si8 O22 (OH)2  | Ferri-ottoliniite  | ——  |
| Na (Na Li) (Mg2 Fe3+2 Li) Si8 O22 (OH)2 | Ferri-whittakerite  | ——  |
|  |  |  |
| 🞎 (Na Mg) (Mg4 Al) Si8 O22 (OH) | —— | Rootname 6 |
| 🞎 (Na Mg) (Mg3 Al2) (Si7 Al) O22 (OH) | —— | Rootname 7 |
| Na (Na Mg) Mg5 Si8 O22 (OH)2 | —— | Rootname 8 |
| Na (Na Mg) (Mg4 Al) (Si7 Al) O22 (OH) | —— | Rootname 9 |
| Na (Na Mg) (Mg3 Al2) (Si6 Al2) O22 (OH) | —— | Rootname 10 |
| 🞎 (Na Mn2+) (Mg4 Al) Si8 O22 (OH) | —— | Rootname 11 |
| 🞎 (Na Mn2+) (Mg4 Fe3+) Si8 O22 (OH) | Parvowinchite | Ferri-rootname 11 |
| 🞎 (Na Mn2+) (Mg3 Al2) (Si7 Al) O22 (OH)2 | —— | Rootname 12 |
| Na (Na Mn2+) Mg5 Si8 O22 (OH)2 | —— | Rootname 13 |
| Na (Na Mn2+) (Mg4 Al) (Si7 Al) O22 (OH)2 | —— | Rootname 14 |
| Na (Na Mn2+) (Mg3 Al2) (Si6 Al2) O22 (OH)2 | —— | Rootname 15 |
| 🞎 (Na Fe2+) (Fe2+4 Al) Si8 O22 (OH)2 | —— | Rootname 16 |
|  |  |  |
| Na Ca2 (Mg4 Ti4+) (Si6 Al2) O22 (OH) O  | Kaersutite  | —— |
| Na Ca2 (Mg3 Ti4+ Al) (Si6 Al2) O22 O2 | —— | Kaersutite |
| Na Na2 (Mg3 Fe3+ Ti4+) Si8 O22 O2 | Obertiite | Ferri-obertiite |
| Na Na2 (Mg Mn3+2 Ti4+ Li) Si8 O22 O2 | Dellaventuraite | Mangani-dellaventuraite |
| Na Na2 (Fe2+3 Fe3+ Ti4+) Si8 O22 O2 | Ferro-obertiite | Ferro-ferri-obertiite |
| Na Na2 (Mn2+2 Mn3+3) Si8 O22 O2 | Ungarettiite | Mangano-mangani-ungarettiite |
|  |  |  |
| **End-member formula** | **Leake (1978)** | **New scheme** |
|  |  |  |
| 🞎 Ca2 (Mg4 Al) (Si7 Al) O22 (OH)2 | Alumino-magnesio-hornblende | Magnesio-hornblende |
| 🞎 Ca2 (Fe2+4 Al) (Si7 Al) O22 (OH)2 | Alumino-ferro-hornblende | Ferro-hornblende |
| 🞎 (Na Ca) (Fe2+4 Al) Si8 O22 (OH)2 | Ferro-alumino-winchite | Ferro-winchite |
| Na (Na Ca) (Fe2+4 Al) (Si7 Al) O22 (OH)2 | Alumino-katophorite | Ferro-katophorite |
| Na (Na Ca) (Fe2+4 Fe3+) (Si7 Al) O22 (OH)2 | Ferri-katophorite | Ferro-ferri-katophorite  |
|  |  |  |
| **End-member formula** | **IMA(2004-2012)** | **New scheme** |
|  |  |  |
| Na (Na Ca) (Mg3 Al2) (Si6 Al2) O22 F2  | Fluoro-alumino-magnesiotaramite | Fluoro-taramite |
| K (Na Ca) (Mg3 Fe3+2) (Si6 Al2) O22 (OH)2 | Potassic-aluminotaramite | Potassic-taramite |
| Na Na2 (Fe2+2 Al2 Li) Si8 O22 F2 | Fluoro-aluminoleakeite | Ferro-fluoro-leakeite |
| Na Li2 (Mg2 Al2 Li) Si8 O22 F 2 | Fluoro-sodicpedrizite | Fluoro-pedrizite |
| Na Li2 (Fe2+2 Al2 Li) Si8 O22 F2 | Fluoro-sodic-ferropedrizite | Ferro-fluoro-pedrizite |
|  |  |  |
| **End-member formula** | **IMA(2004-2012)** | **New scheme** |
|  |  |  |
| 🞎 (Na Mn) (Mg4 Fe3+) Si8 O22 (OH)2 | Parvowinchite | Ferri-rootname 12 |
| Na (Ca Mn) Mg5 (Si7 Al) O22 (OH)2 | Parvo-mangano-edenite | —— |
| Na (Ca>Mn)2 Mg5 (Si7Al) O22 (OH) | —— | Edenite |
| Na (Mn>Ca)2 Mg5 (Si7Al) O22 (OH)2 | —— | BMn analogue of rootname 1 |
| 🞎 (Ca Mn) Mg5 Si8 O22 (OH)2 | Parvo-manganotremolite | —— |
| 🞎 (Ca>Mn)2 Mg5 Si8 O22 (OH)2 | ——  | Tremolite |
| 🞎 (Mn>Ca)2 Mg5 Si8 O22 (OH)2 | —— | Rootname3 |
| Na Ca2 (Mg4Cr) (Si6 Al2) O22 (OH)2 | Ehimeite | Chromio-pargasite |
|  |  |  |
| For the sake of clarity, the following rootnames have been discredited by the present scheme: ehimeite, kornite, kozulite, ottoliniite, whittakerite. |