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Glossary of
MINERAL SPECIES 1995

Fleischer • Mandarino

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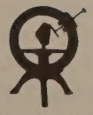
Michael Fleischer
Joseph A. Mandarino



The Mineralogical Record Inc.

Tucson

This is an alphabetical list, as of August 31, 1994, of the names, symmetry, and chemical compositions of mineral species. Synonyms and discarded names are not included, except for commonly used terms. Diacritical marks have not been included, except for umlauts. This 1995 edition supersedes the 1991 edition.

First Edition, 1971
Second Edition, 1975
Third Edition, 1980
Fourth Edition, 1983
Fifth Edition, 1987
Sixth Edition, 1991
Seventh Edition, 1995

Order from: **Glossary — Mineralogical Record**
P.O. Box 35565
Tucson, Arizona 85740 U.S.A.

On the Cover: Miargyrite; Zacatecas, Mexico

Preface

Mineralogical research has continued at a good pace since the appearance of the Sixth edition in 1991. Publication of new mineral descriptions has totalled about 200; nearly all of these had been approved by the Commission on New Minerals and Mineral Names of the International Mineralogical Association prior to publication. The number of valid mineral species is about 3,600. New studies of earlier described minerals have resulted in new information about them and this information is included here.

Two new features are included in this edition. The biggest change is the revision of the section on mineral groups. There, we have added the chemical formulas for all the species. This should save the reader a lot of time when trying to compare the species within a given group. The treatment of polytypes in earlier editions has been rather inconsistent. Polytypes of a mineral should not be considered separate species. In their paper on Procedures involving the IMA Commission on New Minerals and Mineral Names (CNMMN), and guidelines on mineral nomenclature, Nickel & Mandarino (1987) made the following statement about polytypes:

> "Polytypes have been defined as substances that occur in several different structural modifications, each of which may be regarded as built up by the stacking of layers of (nearly) identical structure and composition, and with the modifications differing only in their stacking sequence."

Because the CNMMN does not regard polytypes as mineral species, we have eliminated separate entries for polytypes. Instead, a list of the known polytypes is given under the appropriate mineral name. For example, we have used the following entry for silver:

> **Silver**, Ag, cub., forms a series with **Gold**. The most common polytype is **Silver-3*C***; other polytypes are **Silver-2*H*** and **Silver- 4*H***, both hex., **65**, 1069 (1980)

The complete name for a given polytype consists of the species name joined by a hyphen to a suffix; the suffix consists of a number and an *italicized* capital letter. The number designates the layering periodicity and the letter represents the crystal system. The following letters are used: *C*, cubic; *H*, hexagonal; *R*, rhombohedral; *T*, trigonal; *Q* (for quadratic), tetragonal; *O*, orthorhombic; *M*, monoclinic; and *A* (for anorthic), triclinic. The reader is referred to the paper by Nickel (1993) for more information on polytypes and the system of nomenclature applied to them.

As in the past, we are deeply indebted to many persons for helpful data and suggestions, and especially to Dr. Pete J. Dunn, Smithsonian Institution, Washington, D.C.; Dr. J. L. Jambor, CANMET, Ottawa, Ontario; Mr. A. C. Roberts, Geological Survey of Canada, Ottawa, Ontario; Mr. M. E. Back and Mr. H. Dales, Royal Ontario Museum, Toronto, Ontario; and Mr. J. Ferraiolo, Bowie, Maryland. Mr. J. S. White, Jr., who has retired as Curator of Mineralogy at the Smithsonian Institution, continues to be very helpful and supportive to us. Helen I. Fleischer

edited and corrected the preliminary manuscript. Ms. Carla Heath, in her rôle as typesetter, made the revision work much easier.

The authors welcome any corrections from users of this book.

Michael Fleischer
August 31, 1994 Joseph A. Mandarino

References

Nickel, E. H. and Mandarino, J. A. (1987) Procedures involving the IMA Commission on New Minerals and Mineral Names, and guidelines on mineral nomenclature. *American Mineralogist* **72**, 1031–1042.

Nickel, E. H. (1993) Standardization of polytype suffixes. *American Mineralogist* **78**, 1313.

Introduction

The *Glossary of Mineral Species* has been prepared as an alphabetical summary of mineral names for ready reference. Names that refer to valid or to possibly valid mineral species are listed in bold face; varieties, synonyms, and discredited minerals in ordinary type.

Mineralogical textbooks, since *Dana's System of Mineralogy*, 3rd Edition, 1850, have been structured primarily on chemical classification (grouping by chemical classes such as oxides, halides, carbonates, silicates. etc.) and secondarily on crystal structure. Accordingly, in this *Glossary* emphasis is on the chemical composition, polymorphism, and relationships to other minerals. For each mineral, there is given its chemical formula, crystal system, the color (when distinctive), and a statement of its relations to other minerals. For many minerals, a reference is given to the first description, or to an abstract of the first description, or to a recent significant paper. Most such references, where not specifically designated, are to volume and page number in *The American Mineralogist*, but some from other journals have been cited.

In the chemical formulas, cations are usually entered in order of decreasing cationic radius. Elements or groups placed within the same parenthesis are considered to be in isomorphous substitution, occupying the same structural sites. They are arranged from left to right in order of decreasing abundance.

The term "forms a series with . . ." means that a complete series of solid solution exists from one of the compounds to the other; for example, "Forsterite, Mg_2SiO_4, orth., forms a series with Fayalite, $Fe^{2+}_2SiO_4$, orth.," means that minerals are known to occur with compositions over the entire range.

The term "compare with . . ." means that there are great similarities between these minerals, but that the entire series of compositions between them is not known. Minerals that are listed as belonging to the same group are similarly closely comparable in composition and structure.

The terms "dimorphous with . . . ," "trimorphous with . . . ," or "polymorphous with . . . ," refer to two, three or more than three minerals with identical chemical compositions, but different crystal structures. The term "isostructural with" means that the crystal structures of the two minerals are of the same type, although the chemical compositions are different. Example—the arsenate Berzeliite, $(Ca,Na)_3(Mg,Mn^{2+})_2(AsO_4)_3$ and the silicate Grossular, $Ca_3Al_2(SiO_4)_3$.

The boxes (☐) placed along the left margin are provided so each book owner may codify his or her collection. For example, an open box might signify the absence of that species in the collection. Filling in the box with pen or pencil might signify possession of the species. Possible variations are numerous. Some examples include ◪, ◥, and ☒; with each signifying something different.

The Elements and Their Abbreviations

Aluminum	Al	Hydrogen	H	Rhodium	Rh
Antimony	Sb	Indium	In	Rubidium	Rb
Argon	A	Iodine	I	Ruthenium	Ru
Arsenic	As	Iridium	Ir	Samarium	Sm
Barium	Ba	Iron	Fe	Scandium	Sc
Beryllium	Be	Krypton	Kr	Selenium	Se
Bismuth	Bi	Lanthanum	La	Silicon	Si
Boron	B	Lead	Pb	Silver	Ag
Bromine	Br	Lithium	Li	Sodium	Na
Cadmium	Cd	Lutecium	Lu	Strontium	Sr
Calcium	Ca	Magnesium	Mg	Sulfur	S
Carbon	C	Manganese	Mn	Tantalum	Ta
Cerium	Ce	Mercury	Hg	Tellurium	Te
Cesium	Cs	Molybdenum	Mo	Termium	Tb
Chlorine	Cl	Neodymium	Nd	Thallium	Tl
Chromium	Cr	Neon	Ne	Thorium	Th
Cobalt	Co	Nickel	Ni	Thulium	Tm
Copper	Cu	*Niobium	Nb	Tin	Sn
Dysprosium	Dy	Nitrogen	N	Titanium	Ti
Erbium	Er	Osmium	Os	Tungsten	W
Europium	Eu	Oxygen	O	Uranium	U
Fluorine	F	Palladium	Pd	Vanadium	V
Gadolinium	Gd	Phosphorus	P	Xenon	Xe
Gallium	Ga	Platinum	Pt	Ytterbium	Yb
Germanium	Ge	Potassium	K	Yttrium	Y
Gold	Au	Praseodymium	Pr	Zinc	Zn
Hafnium	Hf	Radium	Ra	Zirconium	Zr
Helium	He	Radon	Rn		
Holmium	Ho	Rhenium	Re		

The transuranium and some short-lived elements are not listed.
*Niobium (Nb) may appear as Columbium (Cb) in some references.

Abbreviations Used in Glossary

amor.	= amorphous	tric.	= triclinic
cols.	= colorless	trig.	= trigonal (rhombohedral)
cub.	= cubic	trimorph.	= trimorphous
dimorph.	= dimorphous	var.	= variety
fib.	= fibrous		
hex.	= hexagonal		
mixt.	= mixture	*Can. Min.*	= *Canadian Mineralogist*
mon.	= monoclinic	*Eur. J. Min.*	= *European Journal of Mineralogy*
orth.	= orthorhombic		
polymorph.	= polymorphous	*Min. Abs.*	= *Mineralogical Abstracts*
ps.	= pseudo	*Min. Mag.*	= *Mineralogical Magazine*
syn.	= synonym	*Mineral. Rec.*	= *Mineralogical Record*
tet.	= tetragonal		

A

☐ **Abelsonite**, $C_{31}H_{32}N_4Ni$, (nickel porphyrin), tric., pink to purple, **63**, 930–937 (1978)

☐ **Abernathyite**, $K_2(UO_2)_2(AsO_4)_2 \cdot 8H_2O$, tet., yellow, *Meta-autunite* group, **41**, 82–90 (1956)

☐ **Abhurite**, $Sn^{2+}_{21}Cl_{16}(OH)_{14}O_6$, trig., **74**, 500 (1989), **78**, 235–236 (1993)

☐ **Abswurmbachite**, $Cu^{2+}Mn^{3+}_6(SiO_4)O_8$, tet., dark brown, compare **Braunite**, **Neltnerite**, *Neues Jahrb. Mineral., Monatsh.* 1991, 117–143 (Eng.), **77**, 670 (1992)

Abukumalite = **Britholite-(Y)**, **51**, 152–158 (1966)

☐ **Acanthite**, Ag_2S, mon., dimorph. with Argentite

☐ **Acetamide**, CH_3CONH_2, trig., **61**, 338 (1976)

Achroite, a var of **Elbaite**

Acmite = **Aegirine**

☐ **Actinolite**, $Ca_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–0.89$, forms a series with **Tremolite** and **Ferro-actinolite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Acuminite**, $SrAlF_4(OH) \cdot H_2O$, mon., dimorph. with **Tikhonenkovite**, **73**, 1492 (1988)

☐ **Adamite**, $Zn_2(AsO_4)(OH)$, orth. or mon., dimorph. with **Paradamite**, forms a series with **Olivenite**, compare **Eveite**

☐ **Adelite**, $CaMg(AsO_4)(OH)$, orth., *Adelite* group

☐ **Admontite**, $MgB_6O_{10} \cdot 7H_2O$, mon., dimorph. with **Mcallisterite**, **65**, 205 (1980)

Adularia, a var. of **Orthoclase**

☐ **Aegirine** (Acmite), $NaFe^{3+}Si_2O_6$, mon., *Pyroxene* group

☐ **Aenigmatite**, $Na_2Fe^{2+}_5TiSi_6O_{20}$, tric., black, *Aenigmatite* group

☐ **Aerinite**, $Ca_4(Al,Fe^{3+},Mg,Fe^{2+})_{10}Si_{12}O_{35}(OH)_{12}(CO_3)\cdot 12H_2O$, mon., fib., blue, **73**, 1498–1499 (1988)

☐ **Aerugite**, $Ni_{17}As_6O_{32}$, trig., green, **50**, 2108 (1965), *Min. Abs.* **42**, no. 1, 23 (1991)

☐ **Aeschynite-(Ce)**, $(Ce,Ca,Fe,Th)(Ti,Nb)_2(O,OH)_6$, orth., forms two series with **Niobo-aeschynite-(Ce)** and with **Aeschynite-(Y)**, compare **Rynersonite**, **Vigezzite**, dimorph. with **Lucasite-(Ce)**

☐ **Aeschynite-(Nd)**, $(Nd,Ce,Ca)(Ti,Nb)_2(O,OH)_6$, orth., **69**, 565 (1984)

☐ **Aeschynite-(Y)** (Blomstrandine, Priorite), $(Y,Ca,Fe,Th)(Ti,Nb)_2(O,OH)_6$, orth., forms two series, with **Aeschynite-(Ce)**, and with **Tantalaeschynite-(Y)**

☐ **Afghanite**, $(Na,Ca,K)_8(Si,Al)_{12}O_{24}(SO_4,Cl,CO_3)_3\cdot H_2O$, hex., *Cancrinite* group, **53**, 2105 (1968)

☐ **Afwillite**, $Ca_3Si_2O_4(OH)_6$, mon., **10**, 447 (1925)

☐ **Agardite-(La)**, $(La,Ca)Cu_6(AsO_4)_3(OH)_6\cdot 3H_2O$, hex., *Mixite* group, **70**, 871 (1985)

☐ **Agardite-(Y)**, $(Y,Ca)Cu_6(AsO_4)_3(OH)_6\cdot 3H_2O$, hex., blue-green, *Mixite* group, **55**, 1447 (1970)

Agate, a banded var. of Chalcedony

☐ **Agrellite**, $NaCa_2Si_4O_{10}F$, tric., **62**, 173 (1977)

☐ **Agrinierite**, $(K_2,Ca,Sr)U_3O_{10}\cdot 4H_2O$, orth., orange, **58**, 805–806 (1973)

☐ **Aguilarite**, Ag_4SeS, orth., compare **Cervelleite**

☐ **Aheylite**, $(Fe^{2+},Zn)Al_6(PO_4)_4(OH)_8\cdot 4H_2O$, tric., blue-green, *Turquoise* group

☐ **Ahlfeldite**, $NiSeO_3\cdot 2H_2O$, mon., forms a series with **Cobaltomenite**, **48**, 1183 (1963)

☐ **Aikinite**, $PbCuBiS_3$, orth., **61**, 15 (1976)

☐ **Ajoite**, $(K,Na)Cu_7^{2+}AlSi_9O_{24}(OH)_6 \cdot 3H_2O$, tric., blue-green, **43**, 1107–1111 (1958), **66**, 201–203 (1981)

☐ **Akaganeite**, beta-$Fe^{3+}(O,OH,Cl)$, mon., ps. tet., compare **Feroxyhyte**, **Goethite**, and **Lepidocrocite**, **48**, 711 (1963), **56**, 659 (1971), **76**, 272–277 (1991)

☐ **Akatoreite**, $Mn_5^{2+}Al_2Si_8O_{24}(OH)_8$, tric., orange to brown, **56**, 416–426 (1971), **79**, 189 (1994)

→ ☐ **Akdalaite**, $4Al_2O_3 \cdot H_2O$, hex., **56**, 635 (1971)

☐ **Akermanite**, $Ca_2MgSi_2O_7$, tet., forms a series with **Gehlenite**, *Melilite* group

☐ **Akhtenskite** (epsilon-MnO_2), hex., trimorph. with **Pyrolusite** and **Ramsdellite**, compare **Nsutite**, **Vernadite**, **75**, 931 (1990)

☐ **Akrochordite**, $Mn_4^{2+}Mg(AsO_4)_2(OH)_4 \cdot 4H_2O$, mon., **8**, 167 (1923), **53**, 1779 (1968)

→ ☐ **Aksaite**, $MgB_6O_7(OH)_6 \cdot 2H_2O$, orth, **48**, 209, 930–935 (1963)

☐ **Aktashite**, $Cu_6Hg_3As_4S_{12}$, trig., forms a series with **Gruzdevite**, compare **Nowackiite**, **58**, 562 (1973)

☐ **Alabandite** (Alabandine), $Mn^{2+}S$, cub., compare **Niningerite**

Alabaster = massive **Gypsum**

☐ **Alacranite**, As_8S_9, mon., orange-yellow, **73**, 189 (1988)

☐ **Alamosite**, $PbSiO_3$, mon.

☐ **Albite**, $NaAlSi_3O_8$, see **Plagioclase**, *Feldspar* group

☐ **Albrechtschraufite**, $Ca_4Mg(UO_2)_2(CO_3)_6F_2 \cdot 17H_2O$, tric.

☐ **Aldermanite**, $Mg_5Al_{12}(PO_4)_8(OH)_{22} \cdot 32H_2O$, orth., **66**, 1099 (1981)

Aldzhanite, $CaMgB_2O_4Cl \cdot 7H_2O$ (?), orth., **56**, 1122 (1971)

☐ **Aleksite**, $PbBi_2Te_2S_2$, ps. trig., **64**, 652 (1979)

Alexandrite, a gem var. of **Chrysoberyl**

☐ **Alforsite**, $Ba_5(PO_4)_3Cl$, hex., *Apatite* group, **66**, 1050–1053 (1981)

☐ **Algodonite**, Cu_6As, orth., ps. hex.

☐ **Aliettite**, a clay mineral, regularly interstratified 1:1 Talc-trioctahedral *Smectite*, *Smectite* group, **57**, 598 (1972), **67**, 395 (1982)

Alkali feldspars = **Albite**, **Anorthoclase**, **Microcline**, **Orthoclase**, **Sanidine**

☐ **Allactite**, $Mn_7(AsO_4)_2(OH)_8$, mon., **53**, 733–741 (1968)

☐ **Allanite-(Ce)** (Orthite), $(Ce,Ca,Y)_2(Al,Fe^{2+},Fe^{3+})_3(SiO_4)_3(OH)$, mon., *Epidote* group

Allanite-(La), $(La,Ce,Ca)_2(Al,Fe^{2+},Fe^{3+})_3(SiO_4)_3(OH)$, mon., *Epidote* group, *Min. Mag.* **55**, 497–508 (1991)

☐ **Allanite-(Y)** (Yttro-orthite), $(Y,Ce,Ca)_2(Al,Fe^{3+})_3(SiO_4)_3(OH)$, mon., *Epidote* group

☐ **Allargentum**, Ag_{1-x},Sb_x, **56**, 638 (1971)

☐ **Alleghanyite**, $Mn_5^{2+}(SiO_4)_2(OH)_2$, mon., dimorph. with **Ribbeite**, *Humite* group, **17**, 1–15 (1932)

Allemontite = a mixt. of **Stibarsen** + either **Arsenic** or **Antimony**

☐ **Alloclasite**, (Co,Fe)AsS, mon., dimorph. with **Glaucodot**, **57**, 1561 (1972)

Allopalladium = **Stibiopalladinite**, **63**, 796 (1978)

☐ **Allophane**, an amor. hydrous aluminum silicate

☐ **Alluaivite**, $Na_{19}(Ca,Mn^{2+})_6(Ti,Nb)_3Si_{26}O_{74}Cl{\cdot}2H_2O$, trig., compare **Eudialyte**, **76**, 1728 (1991)

☐ **Alluaudite**, $NaCaFe^{2+}(Mn^{2+},Fe^{2+},Fe^{3+},Mg)_2(PO_4)_3$, mon., *Alluaudite* group, forms a series with **Ferroalluaudite**, *Min. Mag.* **43**, 227–235 (1987)

☐ **Almandine** (Almandite), $Fe_3^{2+}Al_2(SiO_4)_3$, cub., forms two series, with **Pyrope**, and with **Spessartine**, *Garnet* group

Almbosite, $Fe_5^{2+}Fe_4^{3+}V_4^{5+}Si_3O_{27}$, **66**, 878 (1981)

☐ **Alstonite**, $BaCa(CO_3)_2$, tric., ps. orth., trimorph. with **Barytocalcite** and **Paralstonite**

☐ **Altaite**, PbTe, cub., compare **Clausthalite**, **Galena**

☐ **Althausite**, $Mg_2(PO_4)(OH,F,O)$, orth., dimorph. with **Holtedahlite**, **61**, 502 (1976), **65**, 488 (1980)

☐ **Althupite**, $ThAl(UO_2)_7(PO_4)_4O_2(OH)_5 \cdot 15H_2O$, tric., yellow, **73**, 189–190 (1988)

Altmarkite, $HgPb_2$, tet., (an artifact?), compare **Leadamalgam**, **64**, 652 (1979)

Alum, a general term for hydrous alkali aluminum sulfates

☐ **Aluminite**, $Al_2(SO_4)(OH)_4 \cdot 7H_2O$, mon., ps. orth.

☐ **Aluminium**, Al, cub., **65**, 205 (1980)

☐ **Aluminocopiapite**, $Al_{2/3}Fe_4^{3+}(SO_4)_6(OH)_2 \cdot 20H_2O$, tric., *Copiapite* group, **32**, 483 (1947)

☐ **Aluminokatophorite**, $Na_2Ca(Fe^{2+},Mg)_4AlSi_7AlO_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms two series with **Magnesioaluminokatophorite** and with **Ferrikatophorite**, *Amphibole* group, **63**, 1023–1052 (1978)

Aluminum, see **Aluminium**

☐ **Alumohydrocalcite**, $CaAl_2(CO_3)_2(OH)_4 \cdot 3H_2O$, tric., **13**, 569 (1928)

☐ **Alumopharmacosiderite**, $KAl_4(AsO_4)_3(OH)_4 \cdot 6.5H_2O$, cub., compare **Pharmacosiderite**, **Sodium pharmacosiderite**, **66**, 1099 (1981)

☐ **Alumotantite**, $AlTaO_4$, orth., **67**, 413 (1982), **78**, 849 (1993)

☐ **Alumotungstite**, $(W,Al)(O,OH)_3$ (?), cub. or ps. cub., *Mineral. Rec.* **12**, 82–85 (1981)

☐ **Alunite**, $K_2Al_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group

☐ **Alunogen**, $Al_2(SO_4)_3 \cdot 17H_2O$, tric.

Alushtite, a dioctahedral chlorite, **77**, 1619 (1992)

☐ **Alvanite**, $(Zn,Ni)Al_4(VO_3)_2(OH)_{12} \cdot 2H_2O$, mon., **44**, 1325 (1959), *Min. Mag.* **54**, 609–611 (1990), **77**, 212 (1992)

☐ **Amakinite**, $(Fe^{2+},Mg)(OH)_2$, trig., pale green, *Brucite* group, **47**, 1218 (1962)

Amalgam, mercurian **Silver**, cub., (Ag,Hg)

☐ **Amarantite**, $Fe^{3+}(SO_4)(OH) \cdot 3H_2O$, tric.

☐ **Amarillite**, $NaFe^{3+}(SO_4)_2 \cdot 6H_2O$, mon., **21**, 270 (1936), **77**, 212 (1992)

Amazonite = a green var. of **Microcline**

☐ **Amblygonite**, $(Li,Na)Al(PO_4)(F,OH)$, tric., forms a series with **Montebrasite**, *Amblygonite* group

☐ **Ameghinite**, $NaB_3O_3(OH)_4$, mon., **52**, 935–945 (1967)

☐ **Amesite**, $Mg_2Al(SiAl)O_5(OH)_4$, tric., ps. hex., *Kaolinite-Serpentine* group, **66**, 185–195 (1981)

Amethyst, a violet var. of **Quartz**

☐ **Amicite**, $K_2Na_2Al_4Si_4O_{16} \cdot 5H_2O$, mon., *Zeolite* group, **65**, 808 (1980)

☐ **Aminoffite**, $Ca_2(Be,Al)Si_2O_7(OH) \cdot H_2O$, tet., **23**, 293 (1938)

☐ **Ammonioalunite**, $(NH_4)_2Al_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **73**, 145–152 (1988)

☐ **Ammonioborite**, $(NH_4)_2B_{10}O_{16} \cdot 5H_2O$, mon., **44**, 1150–1158 (1959)

☐ **Ammoniojarosite**, $(NH_4)_2Fe^{3+}_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group

☐ **Ammonioleucite**, $(NH_4,K)AlSi_2O_6$, tet., compare **Leucite**, **71**, 1022–1027 (1986)

Amosite, a commercial name for a var. of asbestos, mainly the amphibole **Grunerite**

Amphibole, see *Amphibole* group

☐ **Amstallite**, $CaAl(Si,Al)_4O_8(OH)_4 \cdot (H_2O,Cl)$, mon., **73**, 1492 (1988)

☐ **Analcime** (Analcite), $NaAlSi_2O_6 \cdot H_2O$, cub., forms a series with **Pollucite**, *Zeolite* group

☐ **Anandite**, $(Ba,K)(Fe^{2+},Mg)_3(Si,Al,Fe)_4O_{10}(O,OH)_2$, mon., polytype ***-2O***, compare **Kinoshitalite**, *Mica* group, **52**, 1586 (1967)

☐ **Anapaite**, $Ca_2Fe^{2+}(PO_4)_2 \cdot 4H_2O$, tric.

☐ **Anatase**, TiO_2, tet., trimorph. with **Rutile** and **Brookite**

☐ **Ancylite-(Ce)**, $SrCe(CO_3)_2(OH) \cdot H_2O$, compare **Calcio-ancylite-(Ce)** and **Gysinite-(Nd)**

☐ **Andalusite**, Al_2SiO_5, orth., trimorph. with **Kyanite** and **Sillimanite**, forms a series with **Kanonaite**

☐ **Andersonite**, $Na_2Ca(UO_2)(CO_3)_3 \cdot 6H_2O$, trig., yellow-green, **36**, 1–22 (1951)

Andesine, see **Plagioclase**, *Feldspar* group

☐ **Andorite**, $PbAgSb_3S_6$, orth., compare **Ramdohrite** and **Uchucchacuaite**, **70**, 219–220 (1985)

☐ **Andradite**, $Ca_3Fe_2^{3+}(SiO_4)_3$, cub., forms two series, with **Grossular**, and with **Schorlomite**, *Garnet* group

☐ **Andremeyerite**, $BaFe_2^{2+}Si_2O_7$, orth., pale emerald-green, **59**, 381 (1974), **73**, 608–612 (1985)

Andrewsite, a mixt. of **Hentschelite**, **Rockbridgeite**, and **Chalcosiderite**, **75**, 1197–1199 (1990)

☐ **Anduoite**, $(Ru,Os)As_2$, orth., forms a series with **Omeiite**, **65**, 808 (1980)

☐ **Angelellite**, $Fe_4^{3+}(AsO_4)_2O_3$, tric., **44**, 1322 (1959)

☐ **Anglesite**, $PbSO_4$, orth., *Barite* group

☐ **Anhydrite**, $CaSO_4$, orth.

☐ **Anilite**, Cu_7S_4, orth., **54**, 1256–1269 (1969)

☐ **Ankangite**, $Ba(Ti,V^{3+},Cr^{3+})_8O_{16}$, tet., black, *Cryptomelane* group, **76**, 2020 (1991), **77**, 1119 (1992)

☐ **Ankerite**, $Ca(Fe^{2+},Mg,Mn)(CO_3)_2$, trig., forms two series, with **Dolomite**, and with **Kutnohorite**, *Dolomite* group

☐ **Annabergite**, $Ni_3(AsO_4)_2 \cdot 8H_2O$, mon., green, forms a series with **Erythrite**, *Vivianite* group

☐ **Annite**, $KFe^{2+}_3AlSi_3O_{10}(OH,F)_2$, mon., *Mica* group

☐ **Anorthite**, $CaAl_2Si_2O_8$, tric., trimorph. with **Dmisteinbergite** and **Svyatoslavite**, see **Plagioclase**, *Feldspar* group

☐ **Anorthoclase**, $(Na,K)AlSi_3O_8$, tric., *Feldspar* group

☐ **Antarcticite**, $CaCl_2 \cdot 6H_2O$, trig., **50**, 2098 (1965)

☐ **Anthoinite**, $WAl(O,OH)_4$ (?), tric., *Mineral. Rec.* **12**, 82 (1981), **70**, 1334–1335 (1985)

☐ **Anthonyite**, $Cu^{2+}(OH,Cl)_2 \cdot 3H_2O$, mon., lavender, **48**, 614–619 (1963)

☐ **Anthophyllite**, $(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$, orth., $Mg/(Mg + Fe^{2+}) = 0.1$–0.89, forms a series with **Magnesio-anthophyllite** and **Ferroanthophyllite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Antigorite**, $(Mg,Fe^{2+})_3Si_2O_5(OH)_4$, mon., polymorph. with **Clinochrysotile**, **Lizardite**, **Orthochrysotile**, **Parachrysotile**, *Kaolinite-Serpentine* group

Antimonite = **Stibnite**

☐ **Antimonpearceite**, $(Ag,Cu)_{16}(Sb,As)_2S_{11}$, mon., compare **Arsenpolybasite**, **48**, 565–572 (1963), **50**, 1507 (1965)

☐ **Antimonselite**, Sb_2Se_3, orth., compare **Bismuthinite**, **Guanajuatite** and **Stibnite**, **79**, 387 (1994)

☐ **Antimony**, Sb, trig., *Arsenic* group

☐ **Antlerite**, $Cu_3^{2+}(SO_4)(OH)_4$, orth., dark green

☐ **Anyuiite**, $Au(Pb,Sb)_2$, tet., lead- to silver-gray, **76**, 299 (1991)

☐ **Apachite**, $Cu_9^{2+}Si_{10}O_{29}\cdot 11H_2O$, mon., blue, **65**, 1065 (1980)

☐ *Apatite*, see **Chlorapatite**, **Fluorapatite**, **Hydroxylapatite**, *Apatite* group. When the term *Apatite* is used without qualification, it usually refers to **Fluorapatite**

☐ **Aphthitalite** (Glaserite), $(K,Na)_3Na(SO_4)_2$, trig.

☐ **Apjohnite**, $Mn^{2+}Al_2(SO_4)_4\cdot 22H_2O$, mon., *Halotrichite* group

☐ **Aplowite**, $(Co,Mn^{2+},Ni)SO_4\cdot 4H_2O$, mon., pink, *Rozenite* group, **50**, 809 (1965)

Apophyllite, a group name, see **Fluorapophyllite**, **Hydroxyapophyllite** and **Natroapophyllite**

☐ **Apuanite**, $Fe^{2+}Fe_4^{3+}Sb_4^{3+}O_{12}S$, tet., black, **64**, 1230–1242 (1979)

Aquamarine = a gem var. of **Beryl**

☐ **Aragonite**, $CaCO_3$, orth., trimorph. with **Calcite** and **Vaterite**, *Aragonite* group

☐ **Aramayoite**, $Ag(Sb,Bi)S_2$, tric., **12**, 265 (1927)

☐ **Aravaipaite**, $Pb_3AlF_9\cdot H_2O$, tric., **74**, 927–933 (1989)

☐ **Arcanite**, K_2SO_4, orth., compare **Mascagnite**, Taylorite

☐ **Archerite**, $(K,NH_4)H_2PO_4$, tet., compare **Biphosphammite**, **62**, 1057 (1977)

☐ **Arctite**, $Na_2Ca_4(PO_4)_3F$, trig., **67**, 621 (1982)

☐ **Arcubisite**, Ag_6CuBiS_4, **63**, 424 (1978)

☐ **Ardaite**, $Pb_{19}Sb_{13}S_{35}Cl_7$, mon., **68**, 642 (1983)

☐ **Ardealite**, $Ca_2(SO_4)(HPO_4)\cdot 4H_2O$, mon., compare **Brushite**, **Gypsum**, **Pharmacolite**, **17**, 251 (1932)

☐ **Ardennite**, $Mn_4^{2+}(Al,Mg)_6(SiO_4)_2(Si_3O_{10})[(As,V)O_4](OH)_6$, orth., yellow to brown

☐ **Arfvedsonite**, $Na_3(Fe^{2+},Mg)_4Fe^{3+}Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, $Fe^{3+}/(Fe^{3+} + Al) = 0.5–1.0$, forms a series with **Magnesio-arfvedsonite**, *Amphibole* group, **63**, 1023–1052 (1978)

Argentite, Ag_2S, cub., dimorph. with **Acanthite**, stable only above 177°C

☐ **Argentojarosite**, $Ag_2Fe_6^{3+}(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **8**, 230 (1923)

☐ **Argentopentlandite**, $Ag(Fe,Ni)_8S_8$, cub., *Pentlandite* group, *Min. Abs.* **30**, 71 (1979)

☐ **Argentopyrite**, $AgFe_2S_3$, orth., dimorph. with **Sternbergite**, **54**, 1198–1206 (1969)

☐ **Argentotennantite**, $(Ag,Cu)_{10}(Zn,Fe)_2(As,Sb)_4S_{13}$, cub., forms a series with **Freibergite**, *Tetrahedrite* group, **73**, 439 (1988)

☐ **Argutite**, GeO_2, tet., *Rutile* group, **69**, 406 (1984)

☐ **Argyrodite**, Ag_8GeS_6, orth., ps. cub., forms a series with **Canfieldite**

☐ **Arhbarite**, $Cu_2^{2+}(AsO_4)(OH)\cdot 6H_2O$, mon. (?), blue, **68**, 1038 (1983)

☐ **Aristarainite**, $Na_2MgB_{12}O_{20}\cdot 8H_2O$, mon., **59**, 647–651 (1974)

Arizonite (Pseudorutile), a mixt.

☐ **Armalcolite**, $(Mg,Fe^{2+})Ti_2O_5$, orth., compare **Pseudobrookite**, **55**, 2136 (1970)

☐ **Armangite**, $Mn_{36}^{2+}As_{18}^{3+}O_{50}(OH)_4(CO_3)$, trig., **64**, 748–757 (1979)

☐ **Armenite**, $BaCa_2Al_6Si_9O_{30}\cdot 2H_2O$, orth., ps. hex., *Osumilite* group (?), **26**, 235 (1941), **77**, 1119 (1992)

☐ **Armstrongite**, $CaZrSi_6O_{15}\cdot 2.5H_2O$, mon., **59**, 208 (1974)

Arnimite, $Cu_5^{2+}(SO_4)_2(OH)_6 \cdot 3H_2O$, orth., perhaps = **Antlerite**, **39**, 851 (1954)

☐ **Arrojadite**, $KNa_4CaMn_4^{2+}Fe_{10}^{2+}Al(PO_4)_{12}(OH,F)_2$, mon., dark green, forms a series with **Dickinsonite**, **35**, 59–76 (1950), **66**, 1034–1049 (1981)

☐ **Arsenbrackebuschite**, $Pb_2(Fe^{2+},Zn)(AsO_4)_2 \cdot H_2O$, mon., honey-yellow, *Brackebuschite* group, **63**, 1282 (1978)

☐ **Arsendescloizite**, $PbZn(AsO_4)(OH)$, orth., pale yellow, *Descloizite* group, *Mineral. Rec.* **13**, 155–157 (1982), **68**, 280 (1983)

☐ **Arsenic**, As, trig., dimorph. with **Arsenolamprite**, *Arsenic* group

☐ **Arseniopleite**, $NaCaMn^{2+}(Mn^{2+},Mg)_2(AsO_4)_3$, mon., *Alluaudite* group, **73**, 666 (1988)

☐ **Arseniosiderite**, $Ca_2Fe_3^{3+}(AsO_4)_3O_2 \cdot 3H_2O$, mon., compare **Mitridatite**, **Robertsite**, **59**, 48–59 (1974)

☐ **Arsenobismite**, $Bi_2(AsO_4)(OH)_3$, **28**, 536–540 (1943)

☐ **Arsenoclasite**, $Mn_5^{2+}(AsO_4)_2(OH)_4$, orth., red, isostructural with **Reppiaite**, **17**, 251 (1932)

☐ **Arsenocrandallite**, $(Ca,Sr)Al_3[(As,P)O_4]_2(OH)_5 \cdot H_2O$, trig., blue to bluish-green, *Crandallite* group, **67**, 854 (1982)

☐ **Arsenoflorencite-(Ce)**, $(Ce,La)Al_3(AsO_4,PO_4)_2(OH)_6$, trig., *Crandallite* group, **73**, 1492–1493 (1988)

Arsenoflorencite-(La), $LaAl_3(AsO_4)_2(OH)_6$, trig., *Crandallite* group

Arsenoflorencite-(Nd), $NdAl_3(AsO_4)_2(OH)_6$, trig., *Crandallite* group

☐ **Arsenogorceixite**, $HBaAl_3(AsO_4)_2(OH)_6$, trig., *Crandallite* group, *N. Jb. Min. Mon.* 97–112 (1991)

☐ **Arsenogoyazite**, $(Sr,Ca,Ba)Al_3(AsO_4,PO_4)_2(OH,F)_5 \cdot H_2O$, trig., *Crandallite* group, **71**, 845–846 (1986)

☐ **Arsenohauchecornite**, Ni_9BiAsS_8, tet., *Hauchecornite* group, **66**, 436 (1981), **75**, 712 (1990)

☐ **Arsenolamprite**, As, orth., dimorph. with **Arsenic**, **45**, 479 (1960)

☐ **Arsenolite**, As_2O_3, cub., dimorph. with **Claudetite**, compare **Senarmontite**

☐ **Arsenopalladinite**, $Pd_8(As,Sb)_3$, tric., **59**, 1332 (1974), **64**, 658 (1979)

☐ **Arsenopyrite**, FeAsS, mon., ps. orth., *Arsenopyrite* group

☐ **Arsenosulvanite**, $Cu_3(As,V)S_4$, cub., forms a series with **Sulvanite**, **40**, 368 (1955)

☐ **Arsenpolybasite**, $(Ag,Cu)_{16}(As,Sb)_2S_{11}$, mon., compare **Antimonpearceite**, **48**, 565–572 (1963), **52**, 1311–1321 (1967)

☐ **Arsentsumebite**, $Pb_2Cu^{2+}(AsO_4)(SO_4)(OH)$, mon., *Brackebuschite* group, **51**, 258–259 (1966)

☐ **Arsenuranospathite**, $HAl(UO_2)_4(AsO_4)_4 \cdot 40H_2O$, tet., pale yellow, **64**, 465 (1979)

☐ **Arsenuranylite**, $Ca(UO_2)_4(AsO_4)_2(OH)_4 \cdot 6H_2O$, orth., orange, **44**, 208 (1959)

☐ **Arthurite**, $Cu^{2+}Fe_2^{3+}(AsO_4,PO_4,SO_4)_2(O,OH)_2 \cdot 4H_2O$, mon., apple-green, *Arthurite* group, **50**, 522 (1965), **55**, 1817 (1970)

☐ **Artinite**, $Mg_2(CO_3)(OH)_2 \cdot 3H_2O$, mon.

☐ **Arupite**, $Ni_3(PO_4)_2 \cdot 8H_2O$, mon., blue, *Vivianite* group

☐ **Arzakite**, $Hg_3S_2(Br,Cl)_2$, mon. or tric., forms a series with **Lavrentievite**, **70**, 873–874 (1985)

☐ **Asbecasite**, $Ca_3(Ti,Sn^{4+})As_6^{3+}Si_2Be_2O_{20}$, trig., bright yellow, **52**, 1583 (1967), **55**, 1818 (1970)

☐ **Asbolane**, $(Co,Ni)_{1-y}(Mn^{4+}O_2)_{2-x}(OH)_{2-2y+2x} \cdot nH_2O$, hex., black, **67**, 417–418 (1982)

☐ **Aschamalmite**, $Pb_6Bi_2S_9$, mon., **69**, 810 (1984)

Ascharite = **Szaibelyite**

☐ **Ashanite**, $(Nb,Ta,U,Fe,Mn)_4O_8$, orth., compare **Ixiolite**, **66**, 217 (1981)

☐ **Ashburtonite**, $Pb_4Cu_4^{2+}Si_4HO_{12}(HCO_3)_4(OH)_6Cl$, tet., blue, **76**, 1701–1707 (1991)

☐ **Ashcroftine-(Y)**, $K_5Na_5(Y,Ca)_{12}Si_{28}O_{70}(OH)_2(CO_3)_8 \cdot 8H_2O$, tet., **55**, 1818 (1970), **72**, 1176–1189 (1987)

☐ **Ashoverite**, $Zn(OH)_2$, tet., trimorph. with **Sweetite** and **Wülfingite**, **75**, 431 (1990)

☐ **Asisite**, $Pb_7SiO_8Cl_2$, tet., yellow to yellow-green, **73**, 643–650 (1988)

☐ **Asselbornite**, $(Pb,Ba)(UO_2)_6(BiO)_4(AsO_4)_2(OH)_{12} \cdot 3H_2O$, cub., brown to lemon-yellow, **69**, 565 (1984)

Astrakhanite = **Blödite**

☐ **Astrocyanite-(Ce)**, $Cu_2(Ce,Nd,La)_2(UO_2)(CO_3)_5(OH)_2 \cdot 1.5H_2O$, hex., bright blue, *Eur. Jour. Mineral.* **2**, 407–411 (1990), **76**, 665 (1991)

☐ **Astrophyllite**, $(K,Na)_3(Fe^{2+},Mn)_7Ti_2Si_8O_{24}(O,OH)_7$, tric., forms a series with **Kupletskite**, *Astrophyllite* group

☐ **Atacamite**, $Cu_2^{2+}Cl(OH)_3$, orth., trimorph. with **Paratacamite** and **Botallackite**, dark green

☐ **Atelestite**, $Bi_8(AsO_4)_3O_5(OH)_5$, mon., yellow

☐ **Athabascaite**, Cu_5Se_4, orth., **56**, 632 (1971)

☐ **Atheneite**, $(Pd,Hg)_3As$, hex., **59**, 1330 (1974)

☐ **Atlasovite**, $Cu_6^{2+}Fe^{3+}BiO_4(SO_4)_5 \cdot KCl$, tet., tab., forms a series with **Nabokoite**, **73**, 927 (1988)

☐ **Atokite**, $(Pd,Pt)_3Sn$, cub., compare **Rustenburgite**, **61**, 340 (1976)

☐ **Attakolite** (Attacolite), $(Ca,Sr)Mn^{2+}(Al,Fe^{3+})_4[(Si,P)O_4]H(PO_4)_3(OH)_4$, mon., **51**, 534 (1966), **77**, 1285–1291 (1992)

Attapulgite = **Palygorskite**

☐ **Aubertite**, $Cu^{2+}Al(SO_4)_2Cl \cdot 14H_2O$, tric., azure-blue, compare **Magnesioaubertite**, **Svyazhinite**, **65**, 205 (1980)

☐ **Augelite**, $Al_2(PO_4)(OH)_3$, mon.

☐ **Augite**, $(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$, mon., *Pyroxene* group

Aurantimonate, $AuSbO_3$, **75**, 931 (1990)

☐ **Aurichalcite**, $(Zn,Cu^{2+})_5(CO_3)_2(OH)_6$, orth., green to blue

☐ **Auricupride**, Cu_3Au, orth., **62**, 595 (1977)

☐ **Aurorite**, $(Mn^{2+},Ag,Ca)Mn_3^{4+}O_7 \cdot 3H_2O$, tric. (?), **52**, 1581 (1967)

☐ **Aurostibite**, $AuSb_2$, cub., *Pyrite* group, **37**, 461–469 (1952)

☐ **Austinite**, $CaZn(AsO_4)(OH)$, orth., forms a series with **Conichalcite**, *Adelite* group, **20**, 112–119 (1935)

☐ **Autunite**, $Ca(UO_2)_2(PO_4)_2 \cdot 10–12H_2O$, tet., yellow, *Autunite* group

☐ **Avicennite**, Tl_2O_3, cub., **44**, 1324 (1959)

☐ **Avogadrite**, $(K,Cs)BF_4$, orth., **12**, 232 (1927)

☐ **Awaruite**, Ni_2Fe to Ni_3Fe, cub.

Axinite, a group name, see *Axinite* group

☐ **Azoproite**, $(Mg,Fe^{2+})_2(Fe^{3+},Ti,Mg)BO_5$, orth., black, *Ludwigite* group, **56**, 360 (1971)

☐ **Azurite**, $Cu_3^{2+}(CO_3)_2(OH)_2$, mon., azure-blue

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☐ **Babefphite**, $BaBe(PO_4)(F,O)$, tet., **51**, 1547 (1966)

☐ **Babingtonite**, $Ca_2(Fe^{2+},Mn)Fe^{3+}Si_5O_{14}(OH)$, tric., forms a series with **Manganbabingtonite**, **17**, 295–303 (1932)

☐ **Baddeleyite**, ZrO_2, mon.

☐ **Bafertisite**, $Ba(Fe^{2+},Mn)_2TiSi_2O_7(O,OH)_2$, mon., red to orange, compare **Hejtmanite**, **45**, 754, 1317 (1960), **57**, 1005 (1972)

☐ **Baghdadite**, $Ca_3(Zr,Ti)Si_2O_9$, mon., compare **Burpalite**, **Lavenite**, **72**, 222 (1987)

☐ **Bahianite**, $Al_5Sb^{5+}O_{14}(OH)_2$, mon., **64**, 464 (1979)

☐ **Baileychlore**, $(Zn,Fe^{2+},Al,Mg)_6(Si,Al)_4O_{10}(OH)_8$, tric., green, *Chlorite* group, **73**, 135–139 (1988)

Baiyuneboite-(Ce), $BaNaCe_2(CO_3)_4F$, hex., yellow, perhaps = **Cordylite-(Ce)**, **75**, 240 (1990)

☐ **Bakerite**, $Ca_4B_4(BO_4)(SiO_4)_3(OH)_3 \cdot H_2O$, mon., *Gadolinite* group

☐ **Balangeroite**, $(Mg,Fe^{3+},Fe^{2+},Mn^{2+})_{42}Si_{16}O_{54}(OH)_{40}$, orth., brown, fib., compare **Gageite**, **68**, 214–219 (1983), **72**, 382–391 (1987)

Balavinskite, $Sr_2B_6O_{11} \cdot 4H_2O$, **54**, 575 (1969)

☐ **Balipholite**, $BaMg_2LiAl_3Si_4O_{12}(OH,F)_8$, orth., **61**, 338 (1976)

☐ **Balkanite**, $Cu_9Ag_5HgS_8$, orth., compare **Danielsite**, **58**, 11–15 (1973)

☐ **Balyakinite**, $CuTeO_3$, orth., blue-green, **66**, 436 (1981)

☐ **Bambollaite**, $Cu(Se,Te)_2$, tet., **58**, 805 (1973)

☐ **Banalsite**, $BaNa_2Al_4Si_4O_{16}$, orth., *Feldspar* group, compare **Stronalsite**, **30**, 85 (1945)

☐ **Bandylite**, $CuB(OH)_4Cl$, tet., deep blue, **23**, 85–90 (1938)

☐ **Bannermanite**, $(Na,K)_x V_x^{4+} V_{6-x}^{5+} O_{15}$ ($x = 0.7$), mon., **68**, 634–642 (1983), **75**, 508–521 (1990)

☐ **Bannisterite**, $KCa(Fe^{2+},Mn^{2+},Zn,Mg)_{20}(Si,Al)_{32}O_{76}(OH)_{16}\cdot 4–12H_2O$, mon., **54**, 577 (1969), **66**, 1063–1067 (1981), **78**, 236 (1993)

☐ **Baotite**, $Ba_4(Ti,Nb)_8Si_4O_{28}Cl$, tet., **45**, 754 (1960), **46**, 466 (1961)

→ ☐ **Bararite**, $(NH_4)_2SiF_6$, hex., dimorph. with **Cryptohalite**, **37**, 361 (1952)

☐ **Baratovite**, $KCa_7(Ti,Zr)_2Li_3Si_{12},O_{36}F_2$, mon., ps. hex., **61**, 1053 (1976), **64**, 383–389 (1979)

→ ☐ **Barberiite**, NH_4BF_4, orth., compare **Avogadrite**, **79**, 381–384 (1994)

☐ **Barbertonite**, $Mg_6Cr_2(CO_3)(OH)_{16}\cdot 4H_2O$, hex., dimorph. with **Stichtite**, *Manasseite* group, **26**, 295–315 (1941)

☐ **Barbosalite**, $Fe^{2+}Fe_2^{3+}(PO_4)_2(OH)_2$, mon., dark blue-green, *Lazulite* group, **40**, 952–966 (1955)

☐ **Barentsite**, $Na_7AlH_2(CO_3)_4F_4$, tric., **69**, 565 (1984)

☐ **Bariandite**, $Al_3(V^{5+},V^{4+})_{40}O_{100}\cdot 90H_2O$, **57**, 1555 (1972), **75**, 508–521 (1990)

☐ **Baricite**, $(Mg,Fe^{2+})_3(PO_4)_2\cdot 8H_2O$, mon., *Vivianite* group, **61**, 1053 (1976)

☐ **Bariomicrolite** (Rijkeboerite), $Ba(Ta,Nb)_2(O,OH)_7$, cub., *Pyrochlore* group, **48**, 1415 (1963), **62**, 407 (1977)

☐ **Bario-orthojoaquinite**, $(Ba,Sr)_2Fe_2^{2+}Ti_2Si_8O_{26}\cdot H_2O$, orth., *Joaquinite* group, **67**, 809–816 (1982)

☐ **Bariopyrochlore** (Pandaite), $(Ba,Sr)_2(Nb,Ti)_2(O,OH)_7$, cub., *Pyrochlore* group, **44**, 1324 (1959), **62**, 407 (1977)

☐ **Barite**, $BaSO_4$, orth., forms a series with **Celestine**, *Barite* group

Barium-pharmacosiderite, $BaFe_8^{3+}(AsO_4)_6(OH)_8\cdot 14H_2O$, tet. (?), **52**, 1585 (1967), *Mineral. Rec.* **16**, 121–124 (1985)

Barkevikite = **Ferrohornblende**

☐ **Barnesite**, $(Na,Ca)_2V_6^{5+}O_{16}\cdot 3H_2O$, mon., dark red, **48**, 1187–1195 (1963), **75**, 508–521 (1990)

Barrandite, intermediate between **Strengite** and **Variscite**

☐ **Barrerite**, $(Na,K,Ca)_2Al_2Si_7O_{18}\cdot 7H_2O$, orth., *Zeolite* group, compare **Stellerite**, **61**, 1053 (1976)

☐ **Barringerite**, $(Fe,Ni)_2P$, a phosphide, hex., **55**, 317 (1970)

☐ **Barringtonite**, $MgCO_3\cdot 2H_2O$ (?), tric., **50**, 2103 (1965)

☐ **Barroisite**, $NaCa(Mg,Fe^{2+})_3Al_2(Si_7Al)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Ferrobarroisite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Barstowite**, $3PbCl_2\cdot PbCO_3\cdot H_2O$, mon., *Min. Mag.* **55**, 121–125 (1991)

☐ **Bartelkeite**, $PbFe^{2+}Ge_3O_8$, mon., **67**, 413 (1982)

☐ **Bartonite**, $K_3Fe_{10}S_{14}$, tet., blackish-brown, **64**, 241 (1979), **66**, 369–384 (1981)

→ ☐ **Barylite**, $BaBe_2Si_2O_7$, orth., ps. hex., **62**, 167–169 (1977)

☐ **Barysilite**, $Pb_8Mn(Si_2O_7)_3$, trig., **54**, 510–521 (1969)

Baryte = **Barite**

☐ **Barytocalcite**, $BaCa(CO_3)_2$, mon., trimorph. with **Alstonite** and **Paralstonite**

☐ **Barytolamprophyllite**, $(Na,K)_2(Ba,Ca,Sr)_2(Ti,Fe)_3(SiO_4)_4(O,OH)_2$, mon., compare **Lamprophyllite**, **51**, 1549 (1966)

☐ **Basaluminite**, $Al_4(SO_4)(OH)_{10}\cdot 5H_2O$, **33**, 787 (1948)

☐ **Bassanite**, $2CaSO_4\cdot H_2O$, mon., ps. hex.

☐ **Bassetite**, $Fe^{2+}(UO_2)_2(PO_4)_2\cdot 8H_2O$, mon., yellow, *Meta-autunite* group, **39**, 683 (1954)

☐ **Bastnäsite-(Ce)**, $(Ce,La)(CO_3)F$, hex., forms a series with **Hydroxylbastnäsite-(Ce)**

☐ **Bastnäsite-(La)**, $(La,Ce)(CO_3)F$, hex., **51**, 152–158 (1966)

☐ **Bastnäsite-(Y)**, $(Y,Ce)(CO_3)F$, hex., **57**, 594 (1972)

☐ **Batisite**, $(Ba,K,Na)_2Ti_2Si_4O_{14}$, orth., **45**, 908, 1317 (1960)

☐ **Baumhauerite**, $Pb_3As_4S_9$, tric.

☐ **Baumhauerite-*2a***, $Pb_{11}Ag(As,Sb)_{18}S_{36}$, mon., **75**, 915–922 (1990)

Baumite, a mixture of *Serpentine* group minerals, **75**, 705 (1990)

☐ **Bauranoite**, $BaU_2O_7 \cdot 4–5H_2O$, reddish-brown, **58**, 1111 (1973)

☐ **Bavenite**, $Ca_4Be_2Al_2Si_9O_{26}(OH)_2$, orth.

Bayankhanite, Cu_6HgS_4, **71**, 1543 (1986)

☐ **Bayerite**, $Al(OH)_3$, mon., polymorph. with **Doyleite**, **Gibbsite** and **Nordstrandite**, **49**, 819 (1964)

☐ **Bayldonite**, $PbCu_3(AsO_4)_2(OH)_2 \cdot H_2O$, mon., green, **66**, 148–153 (1981)

☐ **Bayleyite**, $Mg_2(UO_2)(CO_3)_3 \cdot 18H_2O$, mon., yellow, **36**, 1–22 (1951)

☐ **Baylissite**, $K_2Mg(CO_3)_2 \cdot 4H_2O$, mon.

☐ **Bazhenovite**, $CaS_5 \cdot CaS_2O_3 \cdot 6Ca(OH)_2 \cdot 20H_2O$, mon., orange to yellow, **74**, 500 (1989)

☐ **Bazirite**, $BaZrSi_3O_9$, hex., compare **Benitoite**, **Pabstite**, **61**, 175 (1976), **64**, 241 (1979)

☐ **Bazzite**, $Be_3(Sc,Al)_2Si_6O_{18}$, hex., the Sc-analogue of **Beryl**, **40**, 370 (1955), **52**, 563–564 (1967)

☐ **Bearsite**, $Be_2(AsO_4)(OH) \cdot 4H_2O$, mon., compare **Moraesite**, **48**, 210 (1963)

☐ **Bearthite**, $Ca_2Al(PO_4)_2(OH)$, mon., *Brackebuschite* group, **78**, 1314 (1993)

☐ **Beaverite**, $Pb(Cu^{2+},Fe^{3+},Al)_6(SO_4)_4(OH)_{12}$, trig., canary-yellow, *Alunite* group

☐ **Becquerelite**, $Ca(UO_2)_6O_4(OH)_6 \cdot 8H_2O$, orth., amber to yellow, compare **Billietite**, **Compreignacite**, **45**, 1026–1061 (1960), **72**, 1230–1238 (1987)

☐ **Behierite**, $(Ta,Nb)BO_4$, tet., **46**, 767 (1961), **47**, 414 (1962)

☐ **Behoite**, $Be(OH)_2$, orth., dimorph. with **Clinobehoite**, **55**, 1–9 (1970)

☐ **Beidellite**, $(Na,Ca_{0.5})_{0.3}Al_2(Si,Al)_4O_{10}(OH)_2 \cdot nH_2O$, mon., *Smectite* group

☐ **Belendorffite**, Cu_7Hg_6, trig., ps. cub., dimorph. with **Kolymite**, **77**, 1305 (1992)

☐ **Belkovite**, $Ba_3(Nb,Ti)_6(Si_2O_7)O_{12}$, hex., brown, **76**, 1723 (1991)

☐ **Bellbergite**, $(K,Ba,Sr)_2Sr_2Ca_2(Ca,Na)_4Al_{18}Si_{18}O_{72}$, hex., *Zeolite* group, **79**, 570 (1994)

☐ **Bellidoite**, Cu_2Se, tet., dimorph. with **Berzelianite**, **60**, 736 (1975)

☐ **Bellingerite**, $Cu_3^{2+}(IO_3)_6 \cdot 2H_2O$, tric., green, **25**, 505–512 (1940)

Belorussite-(Ce), see **Byelorussite-(Ce)**

☐ **Belovite**, $(Sr,Ce,Na,Ca)_5(PO_4)_3(OH)$, hex., *Apatite* group, **40**, 367 (1955)

☐ **Belyankinite**, $Ca_{1.2}(Ti,Zr,Nb)_5O_{12} \cdot 9H_2O$ (?), amor., forms a series with **Manganbelyankinite**, **37**, 882 (1952)

☐ **Bementite**, $Mn_8^{2+}Si_6O_{15}(OH)_{10}$, mon.

☐ **Benavidesite**, $Pb_4(Mn,Fe)Sb_6S_{14}$, mon., forms a series with **Jamesonite**, **68**, 280 (1983)

☐ **Benitoite**, $BaTiSi_3O_9$, hex., deep blue, compare **Bazirite**, **Pabstite**

☐ **Benjaminite**, $(Ag,Cu)_3(Bi,Pb)_7S_{12}$, mon., *Can. Min.* **13**, 394–407 (1975)

☐ **Benleonardite**, $Ag_8(Sb,As)Te_2S_3$, tet., **73**, 439 (1988)

☐ **Benstonite**, $(Ba,Sr)_6(Ca,Mn)_6Mg(CO_3)_{13}$, trig., **47**, 585–598 (1962)

Bentonite, a rock consisting mainly of **Montmorillonite**

☐ **Bentorite**, $Ca_6(Cr,Al)_2(SO_4)_3(OH)_{12}\cdot 26H_2O$, hex., bright violet, *Ettringite* group, **66**, 637 (1981)

☐ **Beraunite**, $Fe^{2+}Fe^{3+}_5(PO_4)_4(OH)_5\cdot 4H_2O$, mon., reddish-brown to red

☐ **Berborite**, $Be_2(BO_3)(OH,F)\cdot H_2O$, trig., polytypes **-1*T***, **-2*T***, and **-3*H***, *Min. Abs.* **42**, no. 2, 153 (1991), **53**, 348 (1968), **76**, 1734 (1991)

☐ **Berdesinskiite**, $V^{3+}_2TiO_5$, mon., black, **67**, 1074 (1982), **68**, 1038 (1983)

☐ **Bergenite**, $(Ba,Ca)_2(UO_2)_3(PO_4)_2(OH)_4\cdot 5.5H_2O$, mon., yellow, **45**, 909 (1960), **66**, 1102 (1981)

☐ **Bergslagite**, $CaBe(AsO_4)(OH)$, mon., compare **Drugmanite**, **Herderite**, **Hydroxylherderite**, structurally related to the silicates of the *Gadolinite* group, **70**, 436 (1985), **74**, 901 (1989)

☐ **Berlinite**, $AlPO_4$, trig., isostructural with **Quartz**

☐ **Bermanite**, $Mn^{2+}Mn^{3+}_2(PO_4)_2(OH)_2\cdot 4H_2O$, mon., reddish-brown, **53**, 416–431 (1968)

☐ **Bernalite**, $Fe^{3+}(OH)_3\cdot nH_2O$ (n = 0.0 to 0.25), orth., ps. cub., dark bottle green, **78**, 827–834, **78**, 1108 (1993)

☐ **Bernardite**, $Tl(As,Sb)_5S_8$, mon., black, **75**, 1209 (1990)

☐ **Berndtite**, SnS_2, trig. and hex., **-2*T*** and **-4*H*** polytypes, *Melonite* group, **51**, 1551 (1966), **58**, 347 (1973), **60**, 739 (1975)

☐ **Berryite**, $Pb_3(Ag,Cu)_5Bi_7S_{16}$, mon., **52**, 928 (1967)

☐ **Berthierine**, $(Fe^{2+},Fe^{3+},Mg)_{2-3}(Si,Al)_2O_5(OH)_4$, mon., *Kaolinite-Serpentine* group

☐ **Berthierite**, $FeSb_2S_4$, orth.

☐ **Bertossaite**, $(Li,Na)_2CaAl_4(PO_4)_4(OH,F)_4$, orth., compare **Palermoite**, **52**, 1583 (1967)

☐ **Bertrandite**, $Be_4Si_2O_7(OH)_2$, orth.

☐ **Beryl**, $Be_3Al_2Si_6O_{18}$, hex., compare **Bazzite**

☐ **Beryllite**, $Be_3SiO_4(OH)_2 \cdot H_2O$, orth. (?), **40**, 787 (1955)

☐ **Beryllonite**, $NaBePO_4$, mon.

☐ **Berzelianite**, Cu_2Se, cub., dimorph. with **Bellidoite**

☐ **Berzeliite**, $(Ca,Na)_3(Mg,Mn^{2+})_2(AsO_4)_3$, cub., forms a series with **Manganberzeliite**, structurally related to the vanadate **Palenzonaite** and to the silicates of the *Garnet* group

Beta———, for such entries, see the following word, for example for beta-fergusonite, see **Fergusonite-beta**

☐ **Betafite**, $(Ca,Na,U)_2(Ti,Nb,Ta)_2O_6(OH)$, cub., *Pyrochlore* group, **46**, 1519 (1961), **62**, 407 (1977)

☐ **Betekhtinite**, $Cu_{10}(Fe,Pb)S_6$, orth., **41**, 371 (1956)

☐ **Betpakdalite**, $H_8[K(H_2O)_6]_4[Ca(H_2O)_6]_8[Mo^{6+}_{32}Fe^{3+}_{12}As^{5+}_8O_{148}] \cdot 8H_2O$, mon., bright yellow, **47**, 172 (1962), **70**, 1333 (1985), **78**, 849 (1993)

☐ **Beudantite**, $PbFe^{3+}_3(AsO_4)(SO_4)(OH)_6$, trig., *Beudantite* group

☐ **Beusite**, $(Mn^{2+},Fe^{2+},Ca,Mg)_3(PO_4)_2$, mon., reddish-brown, compare **Graftonite**, **53**, 1799–1814 (1968)

☐ **Beyerite**, $(Ca,Pb)Bi_2(CO_3)_2O_2$, tet., yellow to green, **32**, 660–669 (1947)

☐ **Bezsmertnovite**, $Au_4Cu(Te,Pb)$, orth., **66**, 878 (1981)

☐ **Bianchite**, $(Zn,Fe^{2+})(SO_4) \cdot 6H_2O$, mon., *Hexahydrite* group, **15**, 538 (1930)

☐ **Bicchulite**, $Ca_2Al_2SiO_6(OH)_2$, cub., dimorph. with **Kamaishilite**, **63**, 58–65 (1978)

☐ **Bideauxite**, $Pb_2AgCl_3(F,OH)_2$, cub., **57**, 1003 (1972)

☐ **Bieberite**, $CoSO_4 \cdot 7H_2O$, mon., rose-red, *Melanterite* group

☐ **Bijvoetite-(Y)**, $(Y,Dy)_2(UO_2)_4(CO_3)_4(OH)_6 \cdot 11H_2O$, orth., yellow, **68**, 1248 (1983)

☐ **Bikitaite**, $LiAlSi_2O_6 \cdot H_2O$, mon. and tric., **42**, 792–797 (1957), **43**, 768 (1958), *Zeolite* group (?)

☐ **Bilibinskite**, $Au_3Cu_2PbTe_2$, ps. cub., **64**, 652 (1979)

☐ **Bilinite**, $Fe^{2+}Fe_2^{3+}(SO_4)_4 \cdot 22H_2O$, mon., *Halotrichite* group

☐ **Billietite**, $Ba(UO_2)_6O_4(OH)_6 \cdot 4H_2O$, orth., yellow, compare **Becquerelite**, **Compreignacite**, **45**, 1026–1061 (1960), **72**, 1230–1238 (1987)

☐ **Billingsleyite**, $Ag_7(As,Sb)S_6$, orth., **53**, 1791–1798 (1968)

☐ **Bindheimite**, $Pb_2Sb_2O_6(O,OH)$, cub., *Stibiconite* group

Binnite = **Tennantite**

☐ **Biotite**, $K(Mg,Fe^{2+})_3(Al,Fe^{3+})Si_3O_{10}(OH,F)_2$, mon., forms a series with **Phlogopite**, *Mica* group

☐ **Biphosphammite**, $(NH_4,K)H_2PO_4$, tet., compare **Archerite**

☐ **Biringuccite**, $Na_2B_5O_8(OH) \cdot H_2O$, mon., **48**, 709–711 (1963), **59**, 1005–1015 (1974)

☐ **Birnessite**, $Na_4Mn_{14}O_{27} \cdot 9H_2O$, mon., **75**, 477–489 (1990)

Bisbeeite, $CuSiO_3 \cdot H_2O$ (?), perhaps in part **Plancheite**, in part **Chrysocolla** (?), **57**, 1005–1006 (1972)

☐ **Bischofite**, $MgCl_2 \cdot 6H_2O$, mon., compare **Nickelbischofite**

☐ **Bismite**, Bi_2O_3, mon., gray-green, **28**, 521–525 (1943)

☐ **Bismoclite**, BiOCl, tet., yellow, brown, compare **Daubreeite**, **Zavaritskite**, **20**, 813 (1935)

☐ **Bismuth**, Bi, trig., *Arsenic* group

☐ **Bismuthinite**, Bi_2S_3, orth., compare **Guanajuatite**, **Stibnite**

☐ **Bismutite**, $Bi_2(CO_3)O_2$, tet., **28**, 521–535 (1943)

☐ **Bismutocolumbite**, $Bi(Nb,Ta)O_4$, orth., black, isostructural with **Bismutotantalite**, **79**, 570 (1994)

☐ **Bismutoferrite**, $BiFe_2^{3+}(SiO_4)_2(OH)$, mon., compare **Chapmanite**, **43**, 656–670 (1958)

☐ **Bismutohauchecornite**, $Ni_9Bi_2S_8$, tet., *Hauchecornite* group, **66**, 436 (1981)

☐ **Bismutomicrolite** (Westgrenite), $(Bi,Ca)(Ta,Nb)_2O_6(OH)$, cub., *Pyrochlore* group, **48**, 215 (1963), **62**, 403–410 (1977)

☐ **Bismutostibiconite**, $Bi(Sb^{5+},Fe^{3+})_2O_7$, cub., *Stibiconite* group, **69**, 1190 (1984)

☐ **Bismutotantalite**, $Bi(Ta,Nb)O_4$, orth., compare **Stibiocolumbite**, **Stibiotantalite**, **14**, 312 (1929), **15**, 201 (1930)

☐ **Bityite**, $CaLiAl_2(AlBeSi_2)O_{10}(OH)_2$, mon., *Mica* group

☐ **Bixbyite**, $(Mn^{3+},Fe^{3+})_2O_3$, cub.

☐ **Bjarebyite**, $(Ba,Sr)(Mn^{2+},Fe^{2+},Mg)_2Al_2(PO_4)_3(OH)_3$, mon., emerald green, *Bjarebyite* group, **59**, 873 (1974)

Blackjack = **Sphalerite**

☐ **Blakeite**, a ferric tellurite, **29**, 211–225 (1944)

☐ **Blatterite**, $(Mn^{2+},Mg)_2(Mn^{3+},Sb^{3+},Fe^{3+})BO_5$, orth., black, compare **Orthopinakiolite**, **Takeuchiite**, **74**, 1398 (1989)

Bleiglanz = German for **Galena**

Blende = **Sphalerite**

☐ **Blixite**, $Pb_2Cl(O,OH)_2$, orth., pale yellow, **45**, 908 (1960)

Blockite = **Penroseite**, **22**, 319–324 (1937)

☐ **Blödite**, $Na_2Mg(SO_4)_2 \cdot 4H_2O$, mon., compare **Nickelblödite**

Blomstrandine = **Aeschynite-(Y)**

☐ **Blossite**, alpha-$Cu_2^{2+}V_2^{5+}O_7$, orth., dimorph. with **Ziesite**, **72**, 397–400 (1987)

☐ **Bobfergusonite**, $Na_2Mn_5^{2+}Fe^{3+}Al(PO_4)_6$, mon., red-brown to greenish-brown, **73**, 190 (1988)

☐ **Bobierrite**, $Mg_3(PO_4)_2 \cdot 8H_2O$, mon., related to **Manganese-hörnesite** and the *Vivianite* group

☐ **Bogdanovite**, $(Au,Te,Pb)_3(Cu,Fe)$, cub., rose-brown to bronze, possibly isostructural with isoferroplatinum, **64**, 1329 (1979), **76**, 2025–2026 (1991)

☐ **Boggildite**, $Sr_2Na_2Al_2(PO_4)F_9$, mon., flesh-red, **39**, 848 (1954), **41**, 959 (1956)

☐ **Boggsite**, $Ca_8Na_3(Si,Al)_{96}O_{192} \cdot 70H_2O$, orth., *Zeolite* group, **75**, 501–507 (1990)

☐ **Bøgvadite**, $Na_2SrBa_2Al_4F_{20}$, orth., **76**, 1728–1729 (1991)

☐ **Bohdanowiczite**, $AgBiSe_2$, hex., compare **Matildite**, **Volynskite**, **55**, 2135 (1970), **64**, 1333 (1979)

☐ **Böhmite**, AlO(OH), orth., dimorph. with **Diaspore**, **13**, 72 (1928)

☐ **Bokite**, $(Al,Fe^{3+})_7(V^{5+},V^{4+},Fe^{3+})_{40}O_{100} \cdot 37H_2O$, mon., black, **48**, 1180 (1963), **75**, 508–521 (1990)

☐ **Boleite**, $Pb_{26}Ag_{10}Cu_{24}^{2+}Cl_{62}(OH)_{48} \cdot 3H_2O$, cub., deep blue

☐ **Bolivarite**, $Al_2(PO_4)(OH)_3 \cdot 4–5H_2O$, amor., *Min. Mag.* **38**, 418–423 (1971)

☐ **Boltwoodite**, $HK(UO_2)SiO_4 \cdot 1^1/_2H_2O$, mon., yellow, **46**, 12–25 (1961), **66**, 610–625 (1981)

☐ **Bonaccordite**, $Ni_2Fe^{3+}BO_5$, orth., reddish-brown, *Ludwigite* group, **61**, 502 (1976)

☐ **Bonattite**, $Cu^{2+}SO_4 \cdot 3H_2O$, mon., pale blue, **43**, 180 (1958), **47**, 1223 (1962)

Bonchevite, a mixture of **Pekoite** and **Galenobismutite**, **55**, 1449 (1970), **73**, 666 (1988)

☐ **Bonshtedtite**, $Na_3Fe^{2+}PO_4(CO_3)$, mon., ps. orth., compare **Bradleyite**, **Sidorenkite**, **68**, 1038 (1983)

☐ **Boothite**, $CuSO_4 \cdot 7H_2O$, mon., blue, *Melanterite* group

☐ **Boracite**, $Mg_3B_7O_{13}Cl$, orth., ps. cub., dimorph. with **Trembathite**, forms a series with **Ericaite**, compare **Chambersite**, **Congolite**

☐ **Borax**, $Na_2B_4O_5(OH)_4 \cdot 8H_2O$, mon.

☐ **Borcarite**, $Ca_4MgB_4O_6(OH)_6(CO_3)_2$, tric., blue-green, **50**, 2097 (1965)

Borickite, hydrous phosphate of Ca and Fe, perhaps = **Delvauxite**, **65**, 813 (1980)

☐ **Borishanskiite**, $Pd_{1-x}(As,Pb)_2$, x = 0–0.2, orth., compare **Polarite**

☐ **Bornemanite**, $BaNa_4Ti_2NbSi_4O_{17}(F,OH) \cdot Na_3PO_4$, orth., pale yellow, **61**, 338 (1976)

☐ **Bornhardtite**, $Co^{2+}Co_2^{3+}Se_4$, cub., *Linnaeite* group, **41**, 164 (1956)

☐ **Bornite**, Cu_5FeS_4, orth., ps. cub., **63**, 1–16 (1978)

☐ **Borodaevite**, $Ag_5(Bi,Pb,Fe)_8(Sb,Bi)_2S_{17}$, mon., **79**, 763 (1994)

☐ **Boromuscovite**, $KAl_2BSi_3O_{10}(OH,F)_2$, mon., *Mica* group, **76**, 1998–2002 (1991)

☐ **Borovskite**, Pd_3SbTe_4, cub., **59**, 873 (1974)

☐ **Bostwickite**, $CaMn_6^{3+}Si_3O_{16} \cdot 7H_2O$, orth. (?), dark red, **69**, 810 (1984)

☐ **Botallackite**, $Cu_2^{2+}Cl(OH)_3$, mon., bluish-green, trimorph. with **Atacamite** and **Paratacamite**, **36**, 384 (1951)

☐ **Botryogen**, $MgFe^{3+}(SO_4)_2(OH) \cdot 7H_2O$, mon., red to orange, compare **Zincobotryogen**

☐ **Bottinoite**, $Ni[Sb^{5+}(OH)_6]_2 \cdot 6H_2O$, trig., light blue-green, **77**, 1301–1304 (1992)

☐ **Boulangerite**, $Pb_5Sb_4S_{11}$, mon.

☐ **Bournonite**, $PbCuSbS_3$, orth., forms a series with **Seligmannite**, compare **Soucekite**

☐ **Boussingaultite**, $(NH_4)_2Mg(SO_4)_2 \cdot 6H_2O$, mon., *Picromerite* group

☐ **Bowieite**, $(Rh,Ir,Pt)_2S_3$, orth., compare **Kashinite**, **74**, 1215–1220 (1989)

☐ **Boyleite**, $(Zn,Mg)SO_4 \cdot 4H_2O$, mon., *Rozenite* group, **64**, 241, 464 (1979)

☐ **Brabantite**, $Ca_{0.5}Th_{0.5}(PO_4)$, mon., *Monazite* group, **66**, 878–879 (1981)

☐ **Bracewellite**, $Cr^{3+}O(OH)$, orth., deep red to black, trimorph. with **Grimaldiite** and **Guyanaite**, compare **Akaganeite**, **Diaspore**, **Goethite**, **62**, 593 (1977)

☐ **Brackebuschite**, $Pb_2(Mn^{2+},Fe^{2+})(VO_4)_2 \cdot H_2O$, mon., *Brackebuschite* group

☐ **Bradleyite**, $Na_3Mg(PO_4)(CO_3)$, mon., compare **Bonshtedtite**, **Sidorenkite**, **26**, 646–650 (1941)

☐ **Braggite**, (Pt,Pd,Ni)S, tet., forms a series with **Vysotskite**, dimorph. with **Cooperite**, **17**, 455 (1932), **63**, 832–839 (1978)

☐ **Braitschite-(Ce)**, $(Ca,Na_2)_7(Ce,La)_2B_{22}O_{43} \cdot 7H_2O$, hex., **53**, 1081–1095 (1968)

Brammallite, $(Na,H_3O)(Al,Mg,Fe)_2(Si,Al)_4O_{10}[(OH)_2,H_2O]$, a sodium-rich Illite, mon., **29**, 73 (1944)

☐ **Brandtite**, $Ca_2(Mn^{2+},Mg)(AsO_4)_2 \cdot 2H_2O$, mon., dimorph with **Parabrandtite**, *Roselite* group

☐ **Brannerite**, $(U,Ca,Y,Ce)(Ti,Fe)_2O_6$, mon., forms a series with **Thorutite**, dimorph. with **Orthobrannerite** (?)

☐ **Brannockite**, $KSn_2Li_3Si_{12}O_{30}$, hex., *Osumilite* group, *Mineral. Rec.* **4**, 73–76 (1973), **58**, 1111 (1973)

☐ **Brassite**, $MgHAsO_4 \cdot 4H_2O$, orth., **60**, 945 (1975)

☐ **Braunite**, $Mn^{2+}Mn_6^{3+}SiO_{12}$, tet., brownish-black, compare **Abswurmbachite** and **Neltnerite**

Bravoite = nickeloan **Pyrite**, $(Fe,Ni)S_2$, **74**, 1172–1173 (1989)

☐ **Brazilianite**, $NaAl_3(PO_4)_2(OH)_4$, mon., **30**, 572–582 (1945)

☐ **Bredigite**, $Ca_7Mg(SiO_4)_4$, orth., ps. hex., **33**, 781 (1948), **61**, 74–87 (1976)

☐ **Breithauptite**, NiSb, hex., copper-red, *Nickeline* group

☐ **Brenkite**, $Ca_2(CO_3)F_2$, orth., **64**, 241–242 (1979)

Breunnerite = ferroan **Magnesite**, $(Mg,Fe^{2+})CO_3$

☐ **Brewsterite**, $(Sr,Ba,Ca)Al_2Si_6O_{16}\cdot 5H_2O$, mon., *Zeolite* group

☐ **Brezinaite**, Cr_3S_4, mon., **54**, 1509–1518 (1969)

☐ **Brianite**, $Na_2CaMg(PO_4)_2$, mon., **53**, 508 (1968), **60**, 717–718 (1975)

☐ **Brianyoungite**, $Zn_3(CO_3,SO_4)(OH)_4$, orth. or mon., compare **Hydrozincite**, *Min. Mag.* **57**, 665–670 (1993)

☐ **Briartite**, $Cu_2(Fe,Zn)GeS_4$, tet., *Stannite* group, **51**, 1816 (1966)

☐ **Brindleyite** (Nimesite), $(Ni,Mg,Fe^{2+})_2Al(SiAl)O_5(OH)_4$, mon. and trig., dark yellowish-green, *Kaolinite-Serpentine* group, **58**, 1112 (1973), **63**, 484–489 (1978)

☐ **Britholite-(Ce)**, $(Ce,Ca)_5(SiO_4,PO_4)_3(OH,F)$, hex., related to the *Apatite* group

☐ **Britholite-(Y)** (Abukumalite), $(Y,Ca)_5(SiO_4,PO_4)_3(OH,F)$, hex., related to the *Apatite* group

☐ **Brochantite**, $Cu_4^{2+}(SO_4)(OH)_6$, mon., emerald-green

☐ **Brockite**, $(Ca,Th,Ce)(PO_4)\cdot H_2O$, hex., *Rhabdophane* group, **47**, 1346–1355 (1962)

Bröggerite = thorian *Uraninite*, $(U,Th)O_2$

☐ **Brokenhillite**, $(Mn^{2+}Fe^{2+})_8Si_6O_{15}(OH,Cl)_{10}$, hex., dimorph. with **Manganpyrosmalite**, **74**, 1399 (1989)

☐ **Bromargyrite** (Bromyrite), AgBr, cub.

☐ **Bromellite**, BeO, hex., compare **Zincite**, **11**, 135 (1926)

Bromlite = **Alstonite**

Bromyrite = **Bromargyrite**

Bronzite = ferroan **Enstatite**, $(Mg,Fe^{2+})_2Si_2O_6$, orth., *Pyroxene* group

☐ **Brookite**, TiO_2, orth., trimorph. with **Anatase** and **Rutile**

☐ **Brownmillerite**, $Ca_2(Al,Fe^{3+})_2O_5$, **50**, 2106 (1965), compare **Srebrodolskite**

☐ **Brucite**, $Mg(OH)_2$, trig., *Brucite* group

☐ **Brüggenite**, $Ca(IO_3)_2 \cdot H_2O$, mon., **57**, 1911 (1972)

☐ **Brugnatellite**, $Mg_6Fe^{3+}(CO_3)(OH)_{13} \cdot 4H_2O$, hex.

☐ **Brunogeierite**, $(Ge^{2+},Fe^{2+})Fe^{3+}_2O_4$, cub., *Spinel* group, **58**, 348 (1973)

☐ **Brushite**, $CaHPO_4 \cdot 2H_2O$, mon., compare **Ardealite**, **Gypsum**, **Pharmacolite**

☐ **Buchwaldite**, $NaCaPO_4$, orth., **62**, 362–364 (1977)

☐ **Buckhornite**, $AuPb_2BiTe_2S_3$, orth., compare **Nagyagite**, *Can. Min.* **30**, 1039–1047 (1992), **78**, 1108 (1993)

☐ **Buddingtonite**, $(NH_4)AlSi_3O_8$, mon., *Feldspar* group, **49**, 831–850 (1964), **78**, 204–209 (1993)

☐ **Buergerite**, $NaFe^{3+}_3Al_6(BO_3)_3Si_6O_{18}(O,F)_4$, trig., dark brown, *Tourmaline* group, **51**, 198–199 (1966)

☐ **Bukovite**, $Tl_2(Cu,Fe)_4Se_4$, tet., compare **Thalcusite**, **Murunskite**, **57**, 1910 (1972)

☐ **Bukovskyite**, $Fe^{3+}_2(AsO_4)(SO_4)(OH) \cdot 7H_2O$, mon., yellow-green, **54**, 991 (1969)

☐ **Bulachite**, $Al_2(AsO_4)(OH)_3 \cdot 3H_2O$, orth., **70**, 214 (1985)

☐ **Bultfonteinite**, $Ca_2SiO_2(OH,F)_4$, tric., **17**, 455 (1932), **18**, 32 (1933)

☐ **Bunsenite**, NiO, cub., dark green, *Periclase* group

☐ **Burangaite**, $(Na,Ca)_2(Fe^{2+},Mg)_2Al_{10}(PO_4)_8(OH,O)_{12}\cdot 4H_2O$, mon., bluish to bluish-green, compare **Dufrenite**, **Natrodufrenite**, **63**, 793 (1978)

☐ **Burbankite**, $(Na,Ca)_3(Sr,Ba,Ce)_3(CO_3)_5$, hex., compare **Khanneshite** and **Remondite-(Ce)**, **38**, 1169–1183 (1953)

☐ **Burckhardtite**, $Pb_2(Fe^{3+},Mn^{3+})Te^{4+}(AlSi_3)O_{12}(OH)_2\cdot H_2O$, mon., ps. hex., carmine- to violet-red, **64**, 355–358 (1979)

☐ **Burkeite**, $Na_6(CO_3)(SO_4)_2$, orth., **20**, 50–56 (1935)

☐ **Burpalite**, $Na_2CaZrSi_2O_7F_2$, mon., cols. to yellowish, compare **Baghdadite**, **Lavenite**, *Eur. J. Min.* **2**, 413–418 (1990)

☐ **Bursaite**, $Pb_5Bi_4S_{11}$, orth., **41**, 671 (1956), **74**, 1403 (1989)

☐ **Burtite**, $CaSn(OH)_6$, cub., *Schoenfliesite* group, **67**, 854 (1982)

☐ **Bustamite**, $(Mn^{2+},Ca)_3Si_3O_9$, tric., compare **Ferrobustamite**

☐ **Butlerite**, $Fe^{3+}(SO_4)(OH)\cdot 2H_2O$, mon., dimorph. with **Parabutlerite**, **13**, 203–229 (1928)

☐ **Bütschliite**, $K_2Ca(CO_3)_2$, trig., dimorph. with **Fairchildite**, compare **Eitelite**, **32**, 607–624 (1947), **59**, 353–358 (1974)

☐ **Buttgenbachite**, $Cu_{19}Cl_4(NO_3)_2(OH)_{32}\cdot 2H_2O$, hex., azure-blue, compare **Connellite**, **11**, 216 (1926), **12**, 381 (1927)

☐ **Byelorussite-(Ce)**, $NaMn^{2+}Ba_2Ce_2Ti_2Si_8O_{26}(F,OH)\cdot H_2O$, mon., *Joaquinite* group, **76**, 665–666 (1991)

☐ **Bystrite**, $Ca(Na,K)_7Si_6Al_6O_{24}(S^{2-})_{1.5}\cdot H_2O$, trig., *Cancrinite* group, **78**, 450 (1993)

☐ **Byströmite**, $MgSb_2^{5+}O_6$, tet., *Ferrotapiolite* group, **37**, 53–57 (1952)

Bytownite, see **Plagioclase**, *Feldspar* group

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- **Cabriite,** Pd_2SnCu, orth., *Can. Min.* **21**, 481–487 (1983), **69**, 1190 (1984)
- **Cacoxenite**, $(Fe^{3+},Al)_{25}(PO_4)_{17}O_6(OH)_{12} \cdot 75H_2O$, hex., **70**, 220 (1985)
- **Cadmium**, Cd, hex., **65**, 1065 (1980)
- **Cadmoselite**, CdSe, hex., compare **Greenockite**, **Wurtzite**, **43**, 623 (1958)
- **Cadwaladerite**, $Al(OH)_2Cl \cdot 4H_2O$, amor., lemon-yellow, **27**, 144 (1942)
- **Cafarsite**, $Ca_8(Ti,Fe^{2+},Fe^{3+},Mn)_{6-7}(As^{3+}O_3)_{12} \cdot 4H_2O$, cub., **52**, 1584 (1967), **63**, 795 (1978)
- **Cafetite**, $Ca(Fe^{3+},Al)_2Ti_4O_{12} \cdot 4H_2O$, orth., **45**, 476 (1960)
- **Cahnite**, $Ca_2B(AsO_4)(OH)_4$, tet., **12**, 149–153 (1927)

Calamine = **Hemimorphite**

- **Calaverite**, $AuTe_2$, mon.
- **Calciborite**, CaB_2O_4, orth., **41**, 815 (1956), **49**, 820 (1964)
- **Calcio-ancylite-(Ce)**, $(Ca,Sr)Ce_3(CO_3)_4(OH)_3 \cdot H_2O$, mon., compare **Ancylite-(Ce)**, **Calcio-ancylite-(Nd)**, **Gysinite-(Nd)**
- **Calcio-ancylite-(Nd)**, $Ca(Nd,Ce,Gd,Y)_3(CO_3)_4(OH)_3 \cdot H_2O$, mon., pale pink, compare **Ancylite-(Ce)**, **Calcio-ancylite-(Ce)**, **Gysinite-(Nd)**, **76**, 1729 (1991)
- **Calciobetafite**, $Ca_2(Nb,Ti)_2(O,OH)_7$, cub., *Pyrochlore* group, dimorph. with **Zirkelite**, compare **Polymignite**, **68**, 262–276 (1983)
- **Calciocopiapite**, $CaFe_4^{3+}(SO_4)_6(OH)_2 \cdot 19H_2O$, tric., *Copiapite* group, **47**, 807 (1962)
- **Calcioferrite**, $Ca_4Fe^{2+}(Fe^{3+},Al)_4(PO_4)_6(OH)_4 \cdot 13H_2O$, mon., *Montgomeryite* group, **54**, 993 (1969), *Mineral. Rec.* **16**, 477–480 (1985)

☐ **Calciohilairite**, $CaZrSi_3O_9 \cdot 3H_2O$, trig., compare **Hilairite**, **73**, 1191–1194 (1988)

☐ **Calciotantite**, $CaTa_4O_{11}$, hex., **68**, 471 (1983)

☐ **Calciouranoite**, $(Ca,Ba,Pb)U_2O_7 \cdot 5H_2O$, amor., brown, **60**, 161 (1975)

☐ **Calciovolborthite**, $CaCu(VO_4)(OH)$, orth., greenish-yellow, forms a series with **Conichalcite**, *Adelite* group (needs study)

☐ **Calcite**, $CaCO_3$, trig., trimorph. with **Aragonite** and **Vaterite**, forms a series with **Rhodochrosite**, *Calcite* group

☐ **Calcium catapleiite**, $CaZrSi_3O_9 \cdot 2H_2O$, hex., forms a series with **Catapleiite**, **49**, 1153 (1964)

Calcium-larsenite = **Esperite**

☐ **Calcjarlite**, $Na(Ca,Sr)_3Al_3(F,OH)_{16}$, mon., compare **Jarlite**, **59**, 873–874 (1974)

☐ **Calclacite**, $CaCl_2 \cdot Ca(C_2H_3O_2)_2 \cdot 10H_2O$, (calcium chloride-acetate), mon. or tric., (an artifact?), **32**, 254 (1947)

☐ **Calcurmolite**, $Ca(UO_2)_3(MoO_4)_3(OH)_2 \cdot 11H_2O$, honey-yellow, **49**, 1152 (1964)

☐ **Calderite**, $(Mn^{2+},Ca)_3(Fe^{3+},Al)_2(SiO_4)_3$, cub., dark reddish-brown, *Garnet* group, **66**, 1280 (1981)

☐ **Caledonite**, $Pb_5Cu_2(CO_3)(SO_4)_3(OH)_6$, orth., green

☐ **Calkinsite-(Ce)**, $(Ce,La)_2(CO_3)_3 \cdot 4H_2O$, orth., **38**, 1169–1183 (1953)

☐ **Callaghanite**, $Cu_2Mg_2(CO_3)(OH)_6 \cdot 2H_2O$, mon., azure-blue, **39**, 630–635 (1954)

☐ **Calomel**, Hg_2Cl_2, tet., forms a series with **Kuzminite**

☐ **Calumetite**, $Cu(OH,Cl)_2 \cdot 2H_2O$, orth., azure-blue, **48**, 614–619 (1963)

☐ **Calzirtite**, $CaZr_3TiO_9$, tet., **46**, 1515 (1961)

☐ **Camerolaite**, $Cu_4^{2+}Al_2(HSbO_4,SO_4)(CO_3)(OH)_{10}\cdot 2H_2O$, mon., blue-green, **77**, 1116 (1992)

☐ **Cameronite**, $AgCu_7Te_{10}$, tet., **72**, 1023 (1987)

☐ **Camgasite**, $CaMg(AsO_4)(OH)\cdot 5H_2O$, mon., **76**, 2021 (1991)

☐ **Caminite**, $Mg_7(SO_4)_5(OH)_4\cdot H_2O$, tet., **71**, 819–825 (1986)

☐ **Campigliaite**, $Cu_4^{2+}Mn^{2+}(SO_4)_2(OH)_6\cdot 4H_2O$, mon., light blue, **67**, 385–393 (1982)

☐ **Canaphite**, $CaNa_2P_2O_7\cdot 4H_2O$, mon., *Mineral. Rec.* **16**, 467–468 (1986), **73**, 168–171 (1988)

☐ **Canasite**, $(Na,K)_6Ca_5Si_{12}O_{30}(OH,F)_4$, mon., **45**, 253 (1960)

☐ **Canavesite**, $Mg_2(CO_3)(HBO_3)\cdot 5H_2O$, mon., **64**, 652–653 (1979)

Canbyite = **Hisingerite**, **41**, 816 (1956)

☐ **Cancrinite**, $Na_6Ca_2Al_6Si_6O_{24}(CO_3)_2$, hex., *Cancrinite* group

☐ **Cancrisilite**, $Na_7Al_5Si_7O_{24}(CO_3)\cdot 3H_2O$, hex., dark to light lilac, *Cancrinite* group, **78**, 1314 (1993)

☐ **Canfieldite**, Ag_8SnS_6, orth., ps. cub., forms a series with **Argyrodite**

☐ **Cannizzarite**, $Pb_4Bi_5S_{11}$ (?), **74**, 1403 (1989)

☐ **Cannonite**, $Bi_2O(OH)_2(SO_4)$, mon., *Min. Mag.* **56**, 603–609 (1992), **78**, 845 (1993)

☐ **Capgaronnite**, $HgS\cdot Ag(Cl,Br,I)$, orth., black, **77**, 197–200 (1992), compare **Perroudite**

☐ **Cappelenite-(Y)**, $Ba(Y,Ce)_6Si_3B_6O_{24}F_2$, trig., **69**, 190–195 (1984)

☐ **Caracolite**, $Na_3Pb_2(SO_4)_3Cl$, mon., ps. hex.

Caratiite = **Piypite**, **71**, 1227 (1986)

☐ **Carboborite**, $Ca_2Mg(CO_3)_2B_2(OH)_8\cdot 4H_2O$, mon., **50**, 262 (1965)

☐ **Carbocernaite**, $(Ca,Na)(Sr,Ce,Ba)(CO_3)_2$, orth., **46**, 1202 (1961)

☐ **Carboirite**, $Fe^{2+}Al_2GeO_5(OH)_2$, tric., green, forms a series with **Chloritoid**, **69**, 406 (1984)

Carbonado = black **Diamond**

Carbonate-apatite, see **Carbonate-fluorapatite**, **Carbonate-hydroxylapatite**

☐ **Carbonate-cyanotrichite**, $Cu_4Al2(CO_3,SO_4)(OH)_{12}\cdot 2H_2O$, orth., blue, compare **Cyanotrichite**, **49**, 441 (1964)

☐ **Carbonate-fluorapatite** (Francolite), $Ca_5(PO_4,CO_3)_3F$, hex., *Apatite* group

☐ **Carbonate-hydroxylapatite** (Dahllite), $Ca_5(PO_4,CO_3)_3(OH)$, hex., *Apatite* group

Carborundum = synthetic **Moissanite**

☐ **Carletonite**, $KNa_4Ca_4Si_8O_{18}(CO_3)_4(OH,F)\cdot H_2O$, tet., **56**, 1855–1866 (1971), **57**, 765–778 (1972)

☐ **Carlfriesite**, $CaTe_2^{4+}Te^{6+}O_8$, mon., yellow, **61**, 1053 (1976), **63**, 847–852 (1978)

→ ☐ **Carlhintzeite**, $Ca_2AlF_7\cdot H_2O$, tric., ps. mon., **65**, 205–206 (1980)

☐ **Carlinite**, Tl_2S, trig., **60**, 559–565 (1975)

☐ **Carlosturanite**, $(Mg,Fe^{2+},Ti)_{21}(Si,Al)_{12}O_{28}(OH)_{34}$, mon., fib., light brown, **70**, 767–781 (1985)

☐ **Carlsbergite**, CrN, cub., **57**, 1311 (1972)

☐ **Carminite**, $PbFe_2^{3+}(AsO_4)_2(OH)_2$, orth., carmine-red, **22**, 479–484 (1937)

☐ **Carnallite**, $KMgCl_3\cdot 6H_2O$, orth.

Carnelian, a red or reddish-brown var. of **Quartz**

☐ **Carnotite**, $K_2(UO_2)_2V_2O_8\cdot 3H_2O$, mon., yellow, compare **Margaritasite**, **Tyuyamunite**

☐ **Carobbiite**, KF, cub., **42**, 117 (1957)

☐ **Carpholite**, $Mn^{2+}Al_2Si_2O_6(OH)_4$, orth., forms a series with **Ferrocarpholite**, compare **Magnesiocarpholite**

☐ **Carrboydite**, $(Ni,Cu)_{14}Al_9(SO_4,CO_3)_6(OH)_{43}\cdot 7H_2O$ (?), hex., green, **61**, 366–372 (1976)

☐ **Carrollite**, $Cu(Co,Ni)_2S_4$, cub., *Linnaeite* group

☐ **Caryinite**, $Na(Ca,Pb)(Ca,Mn)(Mn,Mg)_2(AsO_4)_3$, *Alluaudite* group, **73**, 666–667 (1988)

Caryocerite = thorian **Melanocerite-(Ce)** (?)

☐ **Caryopilite**, $(Mn^{2+},Mg)_3Si_2O_5(OH)_4$, mon., related to **Friedelite**, **65**, 335–339 (1980)

☐ **Cascandite**, $Ca(Sc,Fe^{2+})Si_3O_8(OH)$, tric., pale pink, **67**, 599–609 (1982)

☐ **Cassedanneite**, $Pb_5(VO_4)_2(CrO_4)_2\cdot H_2O$, mon., red-orange, **73**, 1493 (1988)

☐ **Cassidyite**, $Ca_2(Ni,Mg)(PO_4)_2\cdot 2H_2O$, tric., green, *Fairfieldite* group, **52**, 1190–1197 (1967)

☐ **Cassiterite**, SnO_2, tet., *Rutile* group

Castaingite, $CuMo_2S_5$, hex., **50**, 264 (1965)

☐ **Caswellsilverite**, $NaCrS_2$, trig., **67**, 132–136 (1982)

☐ **Catapleiite**, $Na_2ZrSi_3O_9\cdot 2H_2O$, hex., forms a series with **Calcium catapleiite**, dimorph. with **Gaidonnayite**

Cathophorite = **Brabantite** (?), **66**, 878–879 (1981)

☐ **Cattierite**, CoS_2, cub., forms two series with **Pyrite**, and with **Vaesite**, *Pyrite* group, **30**, 483–497 (1945)

☐ **Cavansite**, $Ca(V^{4+}O)Si_4O_{10}\cdot 4H_2O$, orth., greenish-blue, dimorph. with **Pentagonite**, **58**, 405–424 (1973)

☐ **Caysichite-(Y)**, $Ca_3GdY_4Si_8O_{20}(CO_3)_6(OH)\cdot 2H_2O$, orth., **61**, 174–175 (1976)

☐ **Cebaite-(Ce)**, $Ba_3Ce_2(CO_3)_5F_2$, mon., yellow to wax-yellow, **70**, 214 (1985)

Cebaite-(Nd) = **Cebaite-(Ce)**, **73**, 1493 (1988)

☐ **Cebollite**, $Ca_2(Mg,Fe^{2+},Al)Si_2(O,OH)_7$, orth.

☐ **Cechite**, $Pb(Fe^{2+},Mn)(VO_4)(OH)$, orth., *Descloizite* group, **67**, 1074 (1982)

☐ **Celadonite**, $K(Mg,Fe^{2+})(Fe^{3+},Al)Si_4O_{10}(OH)_2$, mon., *Mica* group

☐ **Celestine** (Celestite), $SrSO_4$, orth., blue, forms a series with **Barite**, *Barite* group

☐ **Celsian**, $BaAl_2Si_2O_8$, mon., dimorph. with **Paracelsian**, forms a series with **Hyalophane** and **Orthoclase**, *Feldspar* group

Cenosite = **Kainosite-(Y)**

Cerargyrite = **Chlorargyrite**, **49**, 224 (1964)

☐ **Cerianite-(Ce)**, $(Ce^{4+},Th)O_2$, cub., compare **Thorianite**, **Uraninite**, **40**, 560–564 (1955)

☐ **Ceriopyrochlore-(Ce)** (Marignacite), $(Ce,Ca,Y)_2(Nb,Ta)_2O_6(OH,F)$, cub., *Pyrochlore* group, **62**, 403–410 (1977)

☐ **Cerite-(Ce)**, $Ca_9^{3+}Fe^{3+}(SiO_4)_6[(SiO_3)(OH)](OH)_3$, trig., isostructural with the phosphates **Whitlockite** and **Strontiowhitlockite**, **43**, 460–475 (1958)

☐ **Cernyite**, Cu_2CdSnS_4, tet., *Stannite* group, **64**, 653 (1979)

Cerolite = Kerolite

☐ **Cerotungstite-(Ce)**, $CeW_2O_6(OH)_3$, mon., orange-yellow, compare **Yttrotungstite-(Y)**, **57**, 1558 (1972)

☐ **Ceruleite**, $Cu_2Al_7(AsO_4)_4(OH)_{13}\cdot 12H_2O$, tric., deep blue, **62**, 598 (1977)

☐ **Cerussite**, $PbCO_3$, orth., *Aragonite* group

☐ **Cervandonite-(Ce)**, $(Ce,Nd,La)(Fe^{3+},Fe^{2+},Ti,Al)_3(Si,As)_3O_{13}$, mon., black, **75**, 932 (1990)

☐ **Cervantite**, $Sb^{3+}Sb^{5+}O_4$, orth., **47**, 1221 (1962)

☐ **Cervelleite**, Ag_4TeS, cub., compare **Aguilarite, 75**, 1431 (1990)

☐ **Cesanite**, $Na_3Ca_2(SO_4)_3(OH)$, hex., isostructural with the minerals of the *Apatite* group, **67**, 621 (1982)

☐ **Cesarolite**, $PbH_2Mn_3^{4+}O_8$, **5**, 211 (1920)

☐ **Cesbronite**, $Cu_5^{2+}(Te^{4+}O_3)_2(OH)_6 \cdot 2H_2O$, orth., green, **64**, 653 (1979)

☐ **Cesium-kupletskite**, $(Cs,K,Na)_3(Mn,Fe^{2+})_7(Ti,Nb)_2Si_8O_{24}(O,OH,F)_7$, tric., forms a series with **Kupletskite**, *Astrophyllite* group, **57**, 328 (1972)

☐ **Cesplumtantite**, $(Cs,Na)_2(Pb,Sb^{3+})_3Ta_8O_{24}$, tet.

☐ **Cesstibtantite**, $(Cs,Na)Sb^{3+}Ta_4O_{12}$, cub., compare **Natrobistantite**, *Pyrochlore* group, **67**, 413–414 (1982)

☐ **Cetineite**, $(K,Na)_{3+x}(Sb_2O_3)_3(SbS_3)(OH)_x \cdot (3+x)H_2O$, $(x \sim 0.5)$, hex., orange-red, **73**, 398–404 (1988), **74**, 1399–1400 (1989)

☐ **Chabazite**, $CaAl_2Si_4O_{12} \cdot 6H_2O$, trig., *Zeolite* group, compare **Herschelite**

☐ **Chabourneite**, $(Tl,Pb)_{23}(Sb,As)_{91}S_{147}$, tric., **64**, 242 (1979)

☐ **Chaidamuite**, $(Zn,Fe^{2+})Fe^{3+}(SO_4)_2(OH) \cdot 4H_2O$, tric., brown to yellow-brown, compare **Guildite**, **73**, 1493 (1988)

☐ **Chalcanthite**, $Cu^{2+}SO_4 \cdot 5H_2O$, tric., deep blue, *Chalcanthite* group

Chalcedony, a fine-grained var. of **Quartz**

☐ **Chalcoalumite**, $Cu^{2+}Al_4(SO_4)(OH)_{12} \cdot 3H_2O$, mon., turquoise-green, compare **Mbobomkulite**, **Nickelalumite**, **10**, 79–83 (1925)

☐ **Chalcocite**, Cu_2S, mon.

☐ **Chalcocyanite**, $Cu^{2+}SO_4$, orth.

Chalcolite = **Torbernite**

☐ **Chalcomenite**, $Cu^{2+}Se^{4+}O_3 \cdot 2H_2O$, orth., blue, dimorph. with **Clinoehaleomenite**, compare **Teineite**

☐ **Chalconatronite**, $Na_2Cu(CO_3)_2 \cdot 3H_2O$, mon., greenish-blue, **40**, 943 (1955)

☐ **Chalcophanite**, $(Zn,Fe^{2+},Mn^{2+})Mn_3^{4+}O_7 \cdot 3H_2O$, trig., brownish-black, **73**, 1401–1404 (1988)

☐ **Chalcophyllite**, $Cu_{18}^{2+}Al_2(AsO_4)_3(SO_4)_3(OH)_{27} \cdot 3H_2O$, trig., green

☐ **Chalcopyrite**, $CuFeS_2$, tet., brass-yellow, forms a series with **Eskebornite**, *Chalcopyrite* group

☐ **Chalcosiderite**, $Cu^{2+}Fe_6^{3+}(PO_4)_4(OH)_8 \cdot 4H_2O$, tric., green, forms a series with **Turquoise**, *Turquoise* group

Chalcosine = **Chalcocite**

☐ **Chalcostibite**, $CuSbS_2$, orth., compare **Emplectite**

☐ **Chalcothallite**, $Tl_2(Cu,Fe)_6SbS_4$, orth., ps. tet., **53**, 1775 (1968), **64**, 658 (1979)

Chalcotrichite, a var. of **Cuprite**

Challantite = **Ferricopiapite**

Chalybite = **Siderite**

☐ **Chambersite**, $Mn_3B_7O_{13}Cl$, orth., compare **Boracite**, **Ericaite**, **47**, 665–671 (1962)

☐ **Chameanite**, $(Cu,Fe)_4As(Se,S)_4$, cub., **67**, 1074–1075 (1982)

☐ **Chamosite**, $(Fe^{2+},Mg,Fe^{3+})_5Al(Si_3Al)O_{10}(OH,O)_8$, mon., dimorph. with **Orthochamosite**, forms a series with **Clinochlore**, *Chlorite* group

☐ **Changbaiite**, $PbNb_2O_6$, trig., **64**, 242 (1979)

☐ **Chantalite**, $CaAl_2SiO_4(OH)_4$, tet., **63**, 1282 (1978)

☐ **Chaoite**, C, hex., polymorph. with **Diamond**, **Graphite**, and **Lonsdaleite**, **54**, 326 (1969)

☐ **Chapmanite**, $Sb^{3+}Fe^{3+}_2(SiO_4)_2(OH)$, mon., compare **Bismutoferrite**, **49**, 1499 (1964)

☐ **Charlesite**, $Ca_6(Al,Si)_2(SO_4)_2B(OH)_4(OH,O)_{12}\cdot 26H_2O$, hex., *Ettringite* group, **68**, 1033–1037 (1983)

☐ **Charoite**, $K(Ca,Na)_2Si_4O_{10}(OH,F)\cdot H_2O$ (?), mon., lilac to violet, **63**, 1282 (1978)

☐ **Chatkalite**, $Cu_6Fe^{2+}Sn_2S_8$, tet., compare **Mawsonite**, **67**, 621–622 (1982)

☐ **Chayesite**, $K(Mg,Fe^{2+})_4Fe^{3+}Si_{12}O_{30}$, hex., deep blue. *Osumilite* group, **74**, 1368–1374 (1989)

☐ **Chekhovichite**, $Bi_2Te^{4+}_4O_{11}$, mon., **74**, 1400 (1989)

☐ **Chelkarite**, $CaMgB_2O_4Cl_2\cdot 7H_2O$ (?), orth., **56**, 1122 (1971)

☐ **Chenevixite**, $Cu^{2+}_2Fe^{3+}_2(AsO_4)_2(OH)_4\cdot H_2O$, mon., greenish-yellow, compare **Luetheite**

☐ **Chenite**, $Pb_4Cu^{2+}(SO_4)_2(OH)_6$, tric., sky-blue, **72**, 222 (1987)

☐ **Cheralite**, (Ca,Ce,Th)(P,Si)O_4, mon., *Monazite* group, **38**, 734 (1953), **39**, 403 (1954)

☐ **Cheremnykhite**, $Pb_3Zn_3Te^{6+}O_6(VO_4)_2$, orth., **77**, 446 (1992)

☐ **Cherepanovite**, RhAs, orth., **71**, 1544 (1986)

☐ **Chernikovite** (Hydrogen autunite), $(H_3O)_2(UO_2)_2(PO_4)_2\cdot 6H_2O$, tet., pale yellow, *Meta-autunite* group, *Mineral. Rec.* **19**, 249–252 (1988)

☐ **Chernovite-(Y)**, $YAsO_4$, tet., forms a series with **Xenotime-(Y)**, compare **Wakefieldite-(Y)**, **53**, 1777 (1968)

☐ **Chernykhite**, $(Ba,Na)(V^{3+},Al)_2(Si,Al)_4O_{10}(OH)_2$, mon., green, *Mica* group, **58**, 966 (1973)

☐ **Chervetite**, $Pb_2V^{5+}_2O_7$, mon., **48**, 1416 (1963)

☐ **Chessexite**, $Na_4Ca_2(Mg,Zn)_3Al_8(SiO_4)_2(SO_4)_{10}(OH)_{10}\cdot 40H_2O$, orth., **69**, 406 (1984)

Chessylite = **Azurite**

☐ **Chesterite**, $(Mg,Fe^{2+})_{17}Si_{30}O_{54}(OH)_6$, orth., **63**, 1000–1009, 1053–1073 (1978)

☐ **Chestermanite**, $Mg_2(Fe^{3+},Mg,Al,Sb^{5+})BO_5$, orth., gray-green to blue, **75**, 431 (1990)

☐ **Chevkinite**, $(Ca,Ce,Th)_4(Fe^{2+},Mg)_2(Ti,Fe^{3+})_3Si_4O_{22}$, mon., dimorph. with **Perrierite**, compare **Strontio-chevkinite**

Chiastolite, a var. of **Andalusite**

☐ **Chiavennite**, $CaMn^{2+}Be_2Si_5O_{13}(OH)_2\cdot 2H_2O$, orth., orange, **68**, 623–633 (1983)

☐ **Childrenite**, $Fe^{2+}Al(PO_4)(OH)_2\cdot H_2O$, mon., forms a series with **Eosphorite**

Chile saltpeter = **Nitratine**

☐ **Chiluite**, $Bi_6Te_2^{6+}Mo_2^{6+}O_{21}$, hex., yellow, **76**, 666 (1991)

☐ **Chiolite**, $Na_5Al_3F_{14}$, tet.

☐ **Chkalovite**, $Na_2BeSi_2O_6$, orth., **25**, 380 (1940)

☐ **Chladniite**, $Na_2CaMg_7(PO_4)_6$, trig., compare **Fillowite** and **Johnsomervilleite**, **79**, 375–380 (1994)

Chloanthite, an arsenic-deficient var. of **Nickel-skutterudite**

☐ **Chloraluminite**, $AlCl_3\cdot 6H_2O$, trig.

☐ **Chlorapatite**, $Ca_5(PO_4)_3Cl$, mon., *Apatite* group

☐ **Chlorargyrite** (Cerargyrite), AgCl, cub.

☐ **Chlorellestadite**, $Ca_5(SiO_4,PO_4,SO_4)_3(Cl,F)$, hex., compare **Fluorellestadite**, **Hydroxylellestadite**, **Mattheddleite**, isostructural with the minerals of the *Apatite* group, **67**, 90–96 (1982)

Chlorite, see *Chlorite* group

☐ **Chloritoid**, $(Fe^{2+},Mg,Mn)_2Al_4Si_2O_{10}(OH)_4$, mon. and tric., forms a series with **Carboirite**, compare **Magnesiochloritoid**, **Ottrelite**

☐ **Chlormagaluminite**, $(Mg,Fe^{2+})_4Al_2(OH)_{12}(Cl_2,CO_3)\cdot 2H_2O$, hex., *Manasseite* group, **68**, 849 (1983)

☐ **Chlormanganokalite**, K_4MnCl_6, trig., yellow

☐ **Chlorocalcite**, $KCaCl_2$, orth., *Dana 7th ed.* **II**, 91–92 (1951)

☐ **Chlorophoenicite**, $(Mn,Mg)_3Zn_2(AsO_4)(OH,O)_6$, mon., compare **Jarosewichite**, **Magnesium-chlorophoenicite**, *Can. Min.* **19**, 333–336 (1981)

☐ **Chlorothionite**, $K_2Cu^{2+}(SO_4)Cl_2$, orth., bright blue

☐ **Chloroxiphite**, $Pb_3Cu^{2+}Cl_2(OH)_2O_2$, mon., emerald-green, **9**, 96 (1924)

☐ **Choloalite**, $PbCu^{2+}(Te^{4+}O_3)_2\cdot H_2O$, cub., green, **66**, 1099 (1981)

☐ **Chondrodite**, $(Mg,Fe^{2+})_5(SiO_4)_2(F,OH)_2$, mon., *Humite* group

☐ **Christite**, $TlHgAsS_3$, mon., crimson to bright orange, dimorph. with **Routhierite**, **62**, 421–425 (1977)

☐ **Chromatite**, $CaCrO_4$, tet., lemon-yellow, **49**, 438 (1964)

☐ **Chromdravite**, $NaMg_3(Cr,Fe^{3+})_6(BO_3)_3Si_6O_{18}(OH)_4$, trig., dark green, *Tourmaline* group, **69**, 210 (1984)

☐ **Chromferide**, Fe_3Cr_{1-x}, $(x = 0.6)$, cub., **73**, 190 (1988)

☐ **Chromite**, $Fe^{2+}Cr_2O_4$, cub., forms two series, with **Magnesiochromite**, and with **Hercynite**, dimorph. with **Donathite**, *Spinel* group

☐ **Chromium**, Cr, cub., **67**, 854–855 (1982)

☐ **Chrysoberyl**, $BeAl_2O_4$, orth.

☐ **Chrysocolla**, $(Cu^{2+},Al)_2H_2Si_2O_5(OH)_4\cdot nH_2O$, mon., green to blue, **54**, 993–994 (1969)

Chrysolite = **Olivine**

Chrysotile, $Mg_3Si_2O_5(OH)_4$, see **Clinochrysotile**, **Orthochrysotile**, **Parachrysotile**, *Kaolinite-Serpentine* group

☐ **Chudobaite**, $(Mg,Zn)_5H_2(AsO_4)_4 \cdot 10H_2O$, tric., pink, compare **Geigerite**, **45**, 1130 (1960), **62**, 599 (1977), **74**, 676–684 (1989)

☐ **Chukhrovite-(Ce)**, $Ca_3(Ce,Y)Al_2(SO_4)F_{13} \cdot 10H_2O$, cub., **65**, 1065 (1980)

☐ **Chukhrovite-(Y)**, $Ca_3(Y,Ce)Al_2(SO_4)F_{13} \cdot 10H_2O$, cub., **45**, 1132 (1960)

☐ **Churchite-(Y)** (Weinschenkite), $YPO_4 \cdot 2H_2O$, mon.

☐ **Chursinite**, $Hg^{1+}Hg^{2+}(AsO_4)$, mon., **70**, 871 (1985)

☐ **Chvaleticeite**, $(Mn^{2+},Mg)SO_4 \cdot 6H_2O$, mon., *Hexahydrite* group, **72**, 1023 (1987)

☐ **Chvilevaite**, $Na(Cu,Fe,Zn)_2S_2$, hex., bronze color, **74**, 946 (1989)

☐ **Cianciulliite**, $Mn^{2+}(Mg,Mn^{2+})_2Zn_2(OH)_{10} \cdot 2–4H_2O$, dark reddish-brown, **76**, 1708–1710 and 1711–1714 (1991)

☐ **Cinnabar**, HgS, trig., red, trimorph. with **Metacinnabar** and **Hypercinnabar**

Citrine, a yellow var. of **Quartz**

☐ **Clairite**, $(NH_4)_2(Fe^{3+},Mn^{3+})_3(SO_4)_4(OH)_3 \cdot 3H_2O$, tric., **71**, 229 (1986)

☐ **Claraite**, $(Cu,Zn)_3(CO_3)(OH)_4 \cdot 4H_2O$, tric. (?), ps. hex., bluish-green, **68**, 471 (1983)

☐ **Claringbullite**, $Cu_8Cl_2(OH)_{14} \cdot H_2O$, hex., blue, **63**, 793 (1978)

☐ **Clarkeite**, $(Na,Ca,Pb)_2U_2(O,OH)_7$, **41**, 131–133 (1956)

☐ **Claudetite,** As_2O_3, mon., dimorph. with **Arsenolite**

☐ **Clausthalite**, PbSe, cub., forms a series with **Galena**, compare **Altaite**

Cleavelandite, a var. of **Albite** in lamellar masses

☐ **Cliffordite**, $UTe_3^{4+}O_9$, cub., bright yellow, **54**, 697–701 (1969), **57**, 597 (1972)

Cliftonite, a var. of **Graphite** with cub. morphology

☐ **Clinobehoite**, $Be(OH)_2$, mon., dimorph. with **Behoite**, **76**, 666–667 (1991)

☐ **Clinobisvanite**, $BiVO_4$, mon., yellow, trimorph. with **Dreyerite** and **Pucherite**, *Min. Mag.* **39**, 847–849 (1974)

☐ **Clinochalcomenite**, $Cu^{2+}Se^{4+}O_3 \cdot 2H_2O$, mon., blue-green, dimorph. with **Chalcomenite**, **66**, 217 (1981)

☐ **Clinochlore**, $(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$, mon., forms a series with **Chamosite**, *Chlorite* group

☐ **Clinochrysotile**, $Mg_3Si_2O_5(OH)_4$, mon., polymorph. with **Antigorite**, **Lizardite**, **Orthochrysotile**, and **Parachrysotile**, compare **Pecoraite**, *Kaolinite-Serpentine* group

☐ **Clinoclase**, $Cu_3^{2+}(AsO_4)(OH)_3$, mon., dark green

☐ **Clinoenstatite**, $Mg_2Si_2O_6$, mon., forms a series with **Clinoferrosilite**, dimorph. with **Enstatite**, compare **Kanoite**, *Pyroxene* group

☐ **Clinoferrosilite**, $(Fe^{2+},Mg)_2Si_2O_6$, mon., forms a series with **Clinoenstatite**, dimorph. with **Ferrosilite**, compare **Kanoite**, *Pyroxene* group, **21**, 678 (1936)

☐ **Clinohedrite**, $CaZnSiO_4 \cdot H_2O$, mon.

☐ **Clinoholmquistite**, $Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$, $Mg/(Mg + Fe^{2+}) = 0.1–0.8$, mon., dimorph. with **Holmquistite**, forms a series with **Magnesioclinoholmquistite** and **Ferroclinoholmquistite**, *Amphibole* group, **52**, 1585 (1967), **63**, 1023–1052 (1978)

☐ **Clinohumite**, $(Mg,Fe^{2+})_9(SiO_4)_4(F,OH)_2$, mon., *Humite* group

Clinohypersthene, intermediate in the series **Clinoenstatite-Clinoferrosilite**, mon., *Pyroxene* group

☐ **Clinojimthompsonite**, $(Mg,Fe^{2+})_5Si_6O_{16}(OH)_2$, mon., dimorph. with **Jimthompsonite**, **63**, 1000–1009, 1053–1073 (1978)

☐ **Clinokurchatovite**, $Ca(Mg,Fe^{2+},Mn)B_2O_5$, mon., dimorph. with **Kurchatovite**, **69**, 810 (1984)

☐ **Clinomimetite**, $Pb_5(AsO_4)_3Cl$, mon., greenish yellow to white, dimorph. with **Mimetite**, *Apatite* group, *Can. Min.* **29**, 369–376 (1991), **76**, 2031 (1991), **79**, 189 (1994)

☐ **Clinophosinaite**, $Na_3CaPSiO_7$, mon., compare **Phosinaite**, **67**, 414 (1982)

☐ **Clinoptilolite**, $(Na,K,Ca)_{2-3}Al_3(Al,Si)_2Si_{13}O_{36}\cdot 12H_2O$, mon., *Zeolite* group, **45**, 341–369 (1960)

☐ **Clinosafflorite**, $(Co,Fe,Ni)As_2$, mon., dimorph. with **Safflorite**, **57**, 1552 (1972)

☐ **Clinotobermorite**, $Ca_5Si_6(O,OH)_{18}\cdot 5H_2O$, mon., dimorph. with **Tobermorite**, *Min. Mag.* **56**, 353–356 (1992)

☐ **Clinotyrolite**, $Ca_2Cu_9^{2+}[(As,S)O_4]_4(O,OH)_{10}\cdot 10H_2O$, mon., emerald-green, compare **Tyrolite**, *Min. Abs.* **31**, 495 (1980)

☐ **Clinoungemachite**, a sulfate of Na, K, and Fe, mon., ps. trig., **23**, 314–328 (1938)

☐ **Clinozoisite**, $Ca_2Al_3(SiO_4)_3(OH)$, mon., forms a series with **Epidote**, dimorph. with **Zoisite**, *Epidote* group

☐ **Clintonite**, $Ca(Mg,Al)_3(Al_3Si)O_{10}(OH)_2$, mon., *Mica* group

Cl-tyretskite = **Hilgardite-1A**, **70**, 636–637 (1985)

☐ **Coalingite**, $Mg_{10}Fe_2^{3+}(CO_3)(OH)_{24}\cdot 2H_2O$, trig., red-brown, **50**, 1893–1913 (1965)

☐ **Cobaltaustinite**, $Ca(Co,Cu^{2+})(AsO_4)(OH)$, orth., forms a series with **Conichalcite**, *Adelite* group, **74**, 501 (1989)

☐ **Cobaltite**, CoAsS, cub., *Cobaltite* group, *Can. Min.* **28**, 719–723 (1990)

☐ **Cobaltkoritnigite**, $(Co,Zn)(As^{5+}O_3)(OH)\cdot H_2O$, tric., deep purple, compare **Koritnigite**, **67**, 414 (1982)

☐ **Cobaltomenite**, $CoSeO_3\cdot 2H_2O$, mon., pink, forms a series with **Ahlfeldite**

☐ **Cobalt pentlandite**, Co_9S_8, cub., forms a series with **Pentlandite**, *Pentlandite* group, **44**, 897–900 (1959), **50**, 2107 (1965)

☐ **Cobalt-zippeite**, $Co_2(UO_2)_6(SO_4)_3(OH)_{10}\cdot 16H_2O$, orth., yellow, compare **Magnesium-zippeite**, **Nickel-zippeite**, **Zinc-zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Cochromite**, $(Co,Ni,Fe^{2+})(Cr,Al)_2O_4$, cub., *Spinel* group, **65**, 811 (1980)

☐ **Coconinoite**, $Fe_2^{3+}Al_2(UO_2)_2(PO_4)_4(SO_4)(OH)_2\cdot 20H_2O$, mon. (?), light yellow, **51**, 651–663 (1966)

☐ **Coeruleolactite**, $(Ca,Cu^{2+})Al_6(PO_4)_4(OH)_8\cdot 4–5H_2O$, tric., *Turquoise* group

☐ **Coesite**, SiO_2, mon., polymorph. with **Cristobalite**, **Quartz**, **Tridymite**, and **Stishovite**, **45**, 1313 (1960), **47**, 1292–1302 (1962)

☐ **Coffinite**, $U(SiO_4)_{1-x}(OH)_{4x}$, tet., compare **Thorogummite**, **41**, 675–688 (1956)

☐ **Cohenite**, $(Fe,Ni,Co)_3C$, orth.

☐ **Colemanite**, $Ca_2B_6O_{11}\cdot 5H_2O$, mon.

☐ **Collinsite**, $Ca_2(Mg,Fe^{2+})(PO_4)_2\cdot 2H_2O$, tric., *Fairfieldite* group

Collophane, a massive fine-grained member of the *Apatite* group, usually **Carbonate-fluorapatite** or **Carbonate-hydroxylapatite**

☐ **Coloradoite**, HgTe, cub., *Sphalerite* group

☐ **Colquiriite**, $CaLiAlF_6$, trig., **66**, 879, 1099 (1981)

Columbite, see **Ferrocolumbite**, **Magnocolumbite**, **Manganocolumbite**; when not specified, usually refers to **Ferrocolumbite**

☐ **Colusite**, $Cu_{26}V_2(As,Sn,Sb)_6S_{32}$, cub., *Colusite* group, **24**, 369–381 (1939)

☐ **Comancheite**, $Hg_{13}(Cl,Br)_8O_9$, orth., orange-red to yellow, **67**, 622 (1982)

☐ **Combeite**, $Na_2Ca_2Si_3O_9$, trig., **43**, 791 (1958), **67**, 418 (1982)

☐ **Comblainite**, $Ni_6^{2+}Co_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$, trig., *Hydrotalcite* group, turquoise-blue, **65**, 1065–1066 (1980)

☐ **Compreignacite**, $K_2(UO_2)_6O_4(OH)_6 \cdot 8H_2O$, orth., yellow, compare **Becquerelite**, **Billietite**, **50**, 807 (1965)

☐ **Congolite**, $(Fe^{2+},Mg,Mn)_3B_7O_{13}Cl$, trig., dimorph. with **Ericaite**, compare **Trembathite**, **57**, 1315 (1972)

☐ **Conichalcite**, $CaCu^{2+}(AsO_4)(OH)$, orth., green, forms three series, with **Austinite**, with **Calciovolborthite**, and with **Cobaltaustinite**, *Adelite* group

☐ **Connellite**, $Cu^{2+}_{19}Cl_4(SO_4)(OH)_{32} \cdot 3H_2O$, hex., azure-blue, compare **Buttgenbachite**

☐ **Cookeite**, $LiAl_4(Si_3Al)O_{10}(OH)_8$, mon., compare **Lunijianlaite**, *Chlorite* group

☐ **Coombsite**, $K(Mn^{2+},Fe^{2+},Mg)_{13}(Si,Al)_{18}O_{42}(OH)_{14}$, trig., brown, compare **Zussmanite**, **77**, 671 (1992)

☐ **Cooperite**, (Pt,Pd,Ni)S, tet., dimorph. with **Braggite**, **14**, 339 (1929), **63**, 832–839 (1978)

☐ **Copiapite**, $Fe^{2+}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$, tric., yellow, *Copiapite* group

☐ **Copper**, Cu, cub., copper-red

Copperas = **Melanterite**

☐ **Coquandite**, $Sb^{3+}_6O_8(SO_4) \cdot H_2O$, tric., *Min. Mag.* **56**, 599–603 (1992), **78**, 845 (1993)

☐ **Coquimbite**, $Fe^{3+}_2(SO_4)_3 \cdot 9H_2O$, trig., dimorph. with **Paracoquimbite**

☐ **Corderoite**, $Hg_3S_2Cl_2$, cub., dimorph. with **Lavrentievite**, **59**, 652–655 (1974)

☐ **Cordierite**, $Mg_2Al_4Si_5O_{18}$, orth., forms a series with **Sekaninaite**, dimorph. with **Indialite**

☐ **Cordylite-(Ce)**, $Ba(Ce,La)_2(CO_3)_3F_2$, hex.

☐ **Corkite**, $PbFe^{3+}_3(PO_4)(SO_4)(OH)_6$, trig., *Beudantite* group

☐ **Cornetite**, $Cu^{2+}_3(PO_4)(OH)_3$, orth., blue, **5**, 17 (1920)

☐ **Cornubite**, $Cu_5^{2+}(AsO_4)_2(OH)_4$, tric., green, **44**, 1321 (1959), **70**, 1333 (1985)

☐ **Cornwallite**, $Cu_5^{2+}(AsO_4)_2(OH)_4 \cdot H_2O$, mon., dark green

☐ **Coronadite**, $Pb(Mn^{4+},Mn^{2+})_8O_{16}$, mon., ps. tet., *Cryptomelane* group, **74**, 913–917 (1989)

☐ **Corrensite**, a clay mineral, 1:1 regular interstratification of trioctahedral *Chlorite* with either trioctahedral **Vermiculite** or trioctahedral *Smectite*, **67**, 394–398 (1982)

☐ **Corundum**, Al_2O_3, trig., *Hematite* group

☐ **Corvusite**, $(Na,Ca)(V^{5+},V^{4+},Fe^{2+})_8O_{20} \cdot 4H_2O$, mon., purplish-black, compare **Fernandinite**, *Can. Min.* **32**, 339–351 (1994)

☐ **Cosalite**, $Pb_2Bi_2S_5$, orth., compare **Veenite**

☐ **Costibite**, CoSbS, orth., dimorph. with **Paracostibite**, *Löllingite* group, **55**, 10–17 (1970)

☐ **Cotunnite**, $PbCl_2$, orth.

☐ **Coulsonite**, $Fe^{2+}V_2^{3+}O_4$, cub., *Spinel* group, **47**, 1284–1291 (1962)

☐ **Cousinite,** $MgU_2Mo_2O_{13} \cdot 6H_2O$ (?), **44**, 910 (1959)

Coutinite = **Lanthanite-(Nd)**, **67**, 414 (1982)

☐ **Covellite**, CuS, hex., indigo-blue, compare **Klockmannite**

☐ **Cowlesite**, $CaAl_2Si_3O_{10} \cdot 6H_2O$, orth., *Zeolite* group, **60**, 951–956 (1975), **78**, 849 (1993)

☐ **Coyoteite**, $NaFe_3S_5 \cdot 2H_2O$, tric., **68**, 245–254 (1983)

☐ **Crandallite**, $CaAl_3(PO_4)_2(OH)_5 \cdot H_2O$, trig., *Crandallite* group

☐ **Creaseyite**, $Pb_2Cu_2^{2+}Fe_2^{3+}Si_5O_{17} \cdot 6H_2O$, orth., green, **61**, 503 (1976)

☐ **Crednerite**, $CuMnO_2$, mon.

☐ **Creedite**, $Ca_3Al_2(SO_4)(F,OH)_{10} \cdot 2H_2O$, mon.

☐ **Crichtonite**, $(Sr,La,Ce,Y)(Ti,Fe^{3+},Mn)_{21}O_{38}$, trig., *Crichtonite* group, **61**, 1203–1212 (1976)

☐ **Criddleite**, $TlAg_2Au_3Sb_{10}S_{10}$, mon., ps. tet., **75**, 706 (1990)

☐ **Cristobalite**, SiO_2, tet., polymorph. with **Coesite**, **Quartz**, **Stishovite**, and **Tridymite**

Crocidolite, an asbestiform var. of **Riebeckite**

☐ **Crocoite**, $PbCrO_4$, mon., orange-red

☐ **Cronstedtite**, $Fe^{2+}_2Fe^{3+}(SiFe^{3+})O_5(OH)_4$, mon. and trig., *Kaolinite-Serpentine* group

☐ **Crookesite**, $Cu_7(Tl,Ag)Se_4$, tet., **73**, 933 (1988), **74**, 1404 (1989)

☐ **Crossite**, $Na_2(Mg,Fe^{2+})_3(Al,Fe^{3+})_2Si_8O_{22}(OH)_2$, mon., $Fe^{3+}/(Fe^{3+} + Al) = 0.3–0.7$, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Cryolite**, Na_3AlF_6, mon.

☐ **Cryolithionite**, $Na_3Li_3Al_2F_{12}$, cub.

☐ **Cryptohalite**, $(NH_4)_2SiF_6$, cub., dimorph. with **Bararite**

☐ **Cryptomelane**, $K(Mn^{4+},Mn^{2+})_8O_{16}$, mon., ps. tet., *Cryptomelane* group, **27**, 607–613 (1942)

Csiklovaite, a mixt. of **tetradymite**, **galenobismutite**, and **bismuthinite**, **76**, 257–265 (1991)

☐ **Cualstibite**, $Cu^{2+}_6Al_2Sb^{5+}_3O_{18}\cdot 16H_2O$, trig., bluish-green, **70**, 1329 (1985)

☐ **Cubanite**, $CuFe_2S_3$, orth., dimorph. with **Isocubanite**

☐ **Cumengite** (Cumengeite), $Pb_{21}Cu^{2+}_{20}Cl_{42}(OH)_{40}$, tet., indigo-blue

☐ **Cummingtonite**, $(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.30–0.69$, forms a series with **Magnesiocummingtonite** and **Grunerite**, *Amphibole* group, **63**, 1023–1252 (1978)

☐ **Cupalite**, (Cu,Zn)Al, orth., **71**, 1278 (1986)

☐ **Cuprite**, $Cu_2^{1+}O$, cub., red

☐ **Cuprobismutite**, $Cu_{10}Bi_{23}S_{23}$, mon., **58**, 967 (1973)

☐ **Cuprocopiapite**, $Cu^{2+}Fe_4^{3+}(SO_4)_6(OH)_2 \cdot 20H_2O$, tric., yellow-green, *Copiapite* group, **23**, 737–739 (1938)

Cuprofaustite = cuproan **Faustite**

☐ **Cuproiridsite**, $CuIr_2S_4$, cub., forms two series with **Cuprorhodsite** and with **Malanite**, **71**, 1277 (1986)

☐ **Cupropavonite**, $AgPbCu_2Bi_5S_{10}$, mon., compare **Mummeite** and **Pavonite**, **65**, 206 (1980)

☐ **Cuprorhodsite**, $CuRh_2S_4$, cub., forms a series with **Cuproiridsite**, compare **Malanite**, **71**, 1277 (1986)

☐ **Cuprorivaite**, $CaCu^{2+}Si_4O_{10}$, tet., azure-blue, **47**, 409–411 (1962)

☐ **Cuprosklodowskite**, $(H_3O)_2Cu^{2+}(UO_2)_2(SiO_4)_2 \cdot 2H_2O$, tric., yellow-green, compare **Sklodowskite**, **66**, 610–625 (1981)

☐ **Cuprospinel**, $(Cu^{2+},Mg)Fe_2^{3+}O_4$, cub., *Spinel* group, **59**, 381 (1974)

☐ **Cuprostibite**, $Cu_2(Sb,Tl)$, tet., **55**, 1810 (1970)

☐ **Cuprotungstite**, $Cu_3^{2+}(WO_4)_2(OH)_2$, green, **17**, 234–237 (1932), **75**, 713 (1990)

☐ **Curetonite**, $Ba(Al,Ti)(PO_4)(OH,O)F$, mon., bright yellow-green to nickel-green, *Mineral. Rec.* **10**, 219–221 (1979), **65**, 206 (1980), **79**, 545–549 (1994)

☐ **Curienite**, $Pb(UO_2)_2V_2O_8 \cdot 5H_2O$, orth., yellow, forms a series with **Francevillite**, **54**, 1220 (1969)

☐ **Curite**, $Pb_2U_5^{6+}O_{17} \cdot 4H_2O$, orth., reddish-brown to deep yellow, **7**, 128 (1922)

☐ **Cuspidine**, $Ca_4Si_2O_7(F,OH)_2$, mon.

☐ **Cuzticite**, $Fe_2^{3+}Te^{6+}O_6 \cdot 3H_2O$, hex., yellow, **68**, 471 (1983)

Cyanite = **Kyanite**

☐ **Cyanochroite**, $K_2Cu^{2+}(SO_4)_2 \cdot 6H_2O$, mon., greenish-blue, *Picromerite* group

☐ **Cyanophyllite**, $Cu_5^{2+}Al_2Sb_3^{3+}O_{12}(OH) \cdot 12H_2O$, orth., greenish-blue, **66**, 1274 (1981)

☐ **Cyanotrichite**, $Cu_4^{2+}Al_2(SO_4)(OH)_{12} \cdot 2H_2O$, orth., blue, compare **Carbonate-cyanotrichite**

☐ **Cylindrite**, $Pb_4Fe^{2+}Sn_4^{4+}Sb_2^{3+}S_{16}$, tric., compare **Franckeite**, **Incaite**, **Potosiite**

☐ **Cymrite**, $BaAl_2Si_2(O,OH)_8 \cdot H_2O$, mon., **35**, 135 (1950), **49**, 158–165 (1964)

☐ **Cyrilovite**, $NaFe_3^{3+}(PO_4)_2(OH)_4 \cdot 2H_2O$, tet., compare **Wardite**, **42**, 586 (1957)

Cyrtolite, a var. of **Zircon**

D

☐ **Dachiardite**, $(Ca,Na_2,K_2)_5Al_{10}Si_{38}O_{96}\cdot 25H_2O$, mon., *Zeolite* group

☐ **Dadsonite**, $Pb_{10+x}Sb_{14-x}S_{31-x}Cl_x$, tric., **55**, 1445 (1970), *Can. Min.* **17**, 601 (1979)

Dahllite = **Carbonate-hydroxylapatite**

☐ **Dalyite**, $K_2ZrSi_6O_{15}$, tric., compare **Davanite**, **37**, 1071 (1952)

☐ **Damaraite**, $3PbO\cdot PbCl_2$, orth., *Min. Mag.* **55**, 593–602 (1991), **77**, 671 (1992)

☐ **Danalite**, $Fe_4^{2+}Be_3(SiO_4)_3S$, cub., forms two series, with **Genthelvite**, and with **Helvite**

☐ **Danbaite**, $CuZn_2$, cub., **69**, 566 (1984)

☐ **Danburite**, $CaB_2(SiO_4)_2$, orth.

☐ **Danielsite**, $(Cu,Ag)_{14}HgS_8$, orth., compare **Balkanite**, **72**, 401–403 (1987), **73**, 187–188 (1988)

☐ **Dannemorite**, $Mn_2(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$, mon., $Fe^{+2}/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Tirodite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **D'Ansite**, $Na_{21}Mg(SO_4)_{10}Cl_3$, cub., **43**, 1221 (1958)

☐ **Daomanite**, $CuPtAsS_2$, orth., **61**, 184 (1976), **65**, 408 (1980)

Daphnite = magnesian **Chamosite**

☐ **Daqingshanite-(Ce)**, $(Sr,Ca,Ba)_3(Ce,La)(PO_4)(CO_3)_{3-x}(OH,F)_x$, hex., yellow, isostructural with **Huntite**, **69**, 811 (1984)

☐ **Darapiosite**, $KNa_2Li(Mn,Zn)_2ZrSi_{12}O_{30}$, hex., *Osumilite* group, **61**, 1053–1054 (1976)

☐ **Darapskite**, $Na_3(SO_4)(NO_3)\cdot H_2O$, mon.

☐ **Datolite**, $Ca_2B_2Si_2O_8(OH)_2$, mon., *Gadolinite* group

☐ **Daubreeite**, BiO(OH,Cl), tet., compare **Bismoclite**, **Zavaritskite**

☐ **Daubreelite**, $Fe^{2+}Cr_2S_4$, cub., *Linnaeite* group

☐ **Davanite**, $K_2TiSi_6O_{15}$, tric., compare **Dalyite**, **70**, 214–215 (1985)

☐ **Davidite-(Ce)**, $(Ce,La)(Y,U,Fe^{2+})(Ti,Fe^{3+})_{20}(O,OH)_{38}$, trig., *Crichtonite* group

☐ **Davidite-(La)**, $(La,Ce)(Y,U,Fe^{2+})(Ti,Fe^{3+})_{20}(O,OH)_{38}$, trig., *Crichtonite* group, **46**, 700–718 (1961), **64**, 1010–1017 (1979)

Davisonite, a mixt. of **Crandallite** and *Apatite*, **71**, 1515–1516 (1986)

☐ **Davreuxite**, $Mn^{2+}Al_6Si_4O_{17}(OH)_2$, mon., **63**, 795 (1978), **69**, 777–787 (1984)

☐ **Davyne**, $(Na,Ca,K)_8Al_6Si_6O_{24}(Cl,SO_4,CO_3)_{2-3}$, hex., *Cancrinite* group

☐ **Dawsonite**, $NaAl(CO_3)(OH)_2$, orth.

Dayingite, $CuCoPtS_4$, cub., (perhaps platinian **Carrollite** (?)), compare **Malanite**, **61**, 184 (1976)

☐ **Deanesmithite**, $Hg_2^{1+}Hg_3^{2+}Cr^{6+}O_5S_2$, tric., orange-red, *Can. Min.*, **31**, 787–793 (1993)

☐ **Deerite**, $(Fe^{2+},Mn^{2+})_6(Fe^{3+},Al)_3Si_6O_{20}(OH)_5$, mon., ps. orth., **50**, 278 (1965), **62**, 1262 (1977)

☐ **Defernite**, $Ca_6(CO_3)_{2-x}(SiO_4)_x(OH)_7(Cl,OH)_{1-2x}$, x = 0.5, **65**, 1066 (1980), **73**, 888–893 (1988)

☐ **Delafossite**, $Cu^{1+}Fe^{3+}O_2$, trig., compare **Mcconnellite**

☐ **Delhayelite**, $(Na,K)_{10}Ca_5Al_6Si_{32}O_{80}(Cl_2,F_2,SO_4)_3 \cdot 18H_2O$, orth., **44**, 1321 (1959)

☐ **Delindeite**, $(Na,K)_3(Ba,Ca)_4(Ti,Fe,Al)_6Si_8O_{26}(OH)_{14}$, mon., pinkish-gray, **73**, 1493–1494 (1988)

☐ **Dellaite**, $Ca_6Si_3O_{11}(OH)_2$, mon. (?), **50**, 2104 (1965)

☐ **Deloryite**, $Cu_4^{2+}(UO_2)(MoO_4)_2(OH)_6$, mon., dark green to black, *Neues Jahrb. Mineral. Monatsh.* **1993**, 58–64 (Eng.)

☐ **Delrioite**, $CaSrV_2^{5+}O_6(OH)_2 \cdot 3H_2O$, mon., pale yellow-green, **44**, 261–264 (1959), **55**, 185–200 (1970)

☐ **Delvauxite**, $CaFe_4^{3+}(PO_4,SO_4)_2(OH)_8 \cdot 4–6H_2O$ (?), amor., **65**, 813 (1980)

☐ **Demesmaekerite**, $Pb_2Cu_5^{2+}(UO_2)_2(Se^{4+}O_3)_6(OH)_6 \cdot 2H_2O$, tric., bottle-green, **51**, 1815 (1966)

☐ **Denisovite**, $(K,Na)Ca_2Si_3O_8(F,OH)$, mon., **70**, 1329 (1985)

☐ **Denningite**, $(Mn^{2+},Zn)Te_2^{4+}O_5$, tet., **47**, 1481 (1962), **48**, 1419 (1963)

☐ **Derbylite**, $(Fe^{3+},Fe^{2+},Ti)_7Sb^{3+}O_{13}(OH)$, mon., black, compare **Tomichite**, **62**, 396 (1977)

☐ **Derriksite**, $Cu_4^{2+}(UO_2)(Se^{4+}O_3)_2(OH)_6$, orth., green, **57**, 1912–1913 (1972)

☐ **Dervillite**, Ag_2AsS_2, mon.

☐ **Desautelsite**, $Mg_6Mn_2^{3+}(CO_3)(OH)_{16} \cdot 4H_2O$, trig., orange, *Hydrotalcite* group, **64**, 127–130 (1979)

☐ **Descloizite**, $PbZn(VO_4)(OH)$, orth., forms a series with **Mottramite**, *Descloizite* group

Desmine = **Stilbite**

☐ **Despujolsite**, $Ca_3Mn^{4+}(SO_4)_2(OH)_6 \cdot 3H_2O$, hex., lemon-yellow, compare **Fleischerite**, **Schaurteite**, **54**, 326 (1969)

Destinezite = **Diadochite**

☐ **Devilline** (Devillite), $CaCu_4^{2+}(SO_4)_2(OH)_6 \cdot 3H_2O$, mon., dark green

Deweylite = a mixt. of disordered **Clinochrysotile** or **Lizardite** with a talc-like mineral, **47**, 811 (1962), **64**, 244 (1979)

☐ **Dewindtite**, $Pb_3(UO_2)_6H_2(PO_4)_4O_4 \cdot 12H_2O$, orth., canary-yellow, **39**, 444–447 (1954), **76**, 1734 (1991)

☐ **Diaboleite**, $Pb_2Cu^{2+}Cl_2(OH)_4$, tet., sky-blue, **9**, 97 (1924)

☐ **Diadochite**, $Fe_2^{3+}(PO_4)(SO_4)(OH)\cdot 5H_2O$, tric., yellow to brown, compare **Sarmientite**

☐ **Diamond**, C, cub., polymorph. with **Chaoite**, **Graphite**, **Lonsdaleite**

☐ **Diaoyudaoite**, $NaAl_{11}O_{17}$, hex., cols. to light green, **75**, 240 (1990)

☐ **Diaphorite**, $Pb_2Ag_3Sb_3S_8$, mon.

☐ **Diaspore**, AlO(OH), orth., dimorph. with **Böhmite**, compare **Bracewellite**, **Goethite**

☐ **Dickinsonite**, $(K,Ba)(Na,Ca)_5(Mn^{2+},Fe^{2+},Mg)_{14}Al(PO_4)_{12}(OH,F)_2$, mon., forms a series with **Arrojadite**, **66**, 1034–1049 (1981)

☐ **Dickite**, $Al_2Si_2O_5(OH)_4$, mon., polymorph. with **Halloysite**, **Kaolinite**, and **Nacrite**, *Kaolinite-Serpentine* group, **15**, 34–39 (1930)

☐ **Dienerite**, Ni_3As, cub., **12**, 96 (1927)

☐ **Dietrichite**, $(Zn,Fe^{2+},Mn^{2+})Al_2(SO_4)_4\cdot 22H_2O$, mon., *Halotrichite* group

☐ **Dietzeite**, $Ca_2H_2O(IO_3)_2(CrO_4)$, mon., yellow, **79**, 189 (1994)

☐ **Digenite**, Cu_9S_5, cub., **27**, 712–716 (1942)

☐ **Dimorphite**, As_4S_3, orth., orange-yellow

Dinite, $C_{20}H_{36}$, orth., **77**, 674 (1992)

☐ **Diomignite**, $Li_2B_4O_7$, tet., **73**, 928 (1988)

☐ **Diopside**, $CaMgSi_2O_6$, mon., forms two series, with **Hedenbergite**, and with **Johannsenite**, *Pyroxene* group

☐ **Dioptase**, $Cu^{2+}SiO_2(OH)_2$, trig., emerald-green

☐ **Dissakisite-(Ce)**, $Ca(Ce,La)MgAl_2(SiO_4)_3(OH)$, mon., yellow-brown, *Epidote* group, **76**, 1990–1997 (1991)

Disthene = **Kyanite**

☐ **Dittmarite**, $(NH_4)Mg(PO_4)\cdot H_2O$, orth., **57**, 1316 (1972)

☐ **Dixenite**, $Cu^{1+}Mn^{2+}_{14}Fe^{3+}(As^{3+}O_3)_5(SiO_4)_2(As^{5+}O_4)(OH)_6$, trig., **66**, 1263–1273 (1981)

☐ **Djerfisherite**, $K_6(Cu,Fe,Ni)_{25}S_{26}Cl$, cub., compare **Thalfenisite**, **51**, 1815 (1966)

☐ **Djurleite**, $Cu_{31}S_{16}$, mon., **47**, 1181–1184 (1962), **48**, 215 (1963)

☐ **Dmisteinbergite**, $CaAl_2Si_2O_8$, hex., trimorph. with **Anorthite** and **Svyatoslavite**, *Feldspar* group

☐ **Dolerophanite**, $Cu^{2+}_2(SO_4)O$, mon., brown

☐ **Dollaseite-(Ce)**, $CaCeMg_2AlSi_3O_{11}(F,OH)_2$, mon., *Epidote* group, **73**, 838–842 (1988)

☐ **Dolomite**, $CaMg(CO_3)_2$, trig., forms two series, with **Ankerite**, and with **Kutnohorite**, *Dolomite* group

☐ **Doloresite**, $H_8V^{4+}_6O_{16}$, mon., **42**, 587–593 (1957), **45**, 1144–1166 (1960)

☐ **Domeykite**, Cu_3As, cub.

Donathite, a mixt. of **Magnetite** and **Chromite**, **77**, 1120–1121 (1992)

☐ **Donharrisite**, $Ni_8Hg_3S_9$, mon., brownish, **75**, 706 (1990)

☐ **Donnayite-(Y)**, $Sr_3NaCaY(CO_3)_6 \cdot 3H_2O$, tric., ps. trig., compare **McKelveyite-(Y)**, **Weloganite**, **64**, 653–654 (1979)

☐ **Donpeacorite**, $(Mn^{2+},Mg)MgSi_2O_6$, orth., yellow-orange, dimorph. with **Kanoite**, *Pyroxene* group, **69**, 472–480 (1984)

☐ **Dorallcharite**, $(Tl,K)Fe^{3+}_3(SO_4)_2(OH)_6$, trig., golden yellow, *Alunite* group, *Eur. J. Min.* **6**, 255–263 (1994)

☐ **Dorfmanite**, $Na_2HPO_4 \cdot 2H_2O$, orth., **66**, 217–218 (1981)

☐ **Dorrite**, $Ca_2Mg_2Fe^{3+}_4Al_4Si_2O_{20}$, tric., *Aenigmatite* group, **73**, 1440–1448 (1988)

☐ **Douglasite**, $K_2Fe^{2+}Cl_4 \cdot 2H_2O$, mon., light green

☐ **Downeyite**, SeO_2, tet., **62**, 316–320 (1977)

☐ **Doyleite**, $Al(OH)_3$, tric., polymorph. with **Bayerite**, **Gibbsite**, **Nordstrandite**, **71**, 845 (1986)

☐ **Dravite**, $NaMg_3Al_6(BO_3)_3Si_6O_{18}(OH)_4$, trig., forms two series, with **Schorl**, and with **Elbaite**, *Tourmaline* group

☐ **Dresserite**, $BaAl_2(CO_3)_2(OH)_4 \cdot H_2O$, orth., compare **Strontiodresserite**, **55**, 1447 (1970)

☐ **Dreyerite**, $BiVO_4$, tet., orange-yellow to brownish-yellow, trimorph. with **Clinobisvanite** and **Pucherite**, **67**, 622 (1982)

☐ **Drugmanite**, $Pb_2(Fe^{3+},Al)H(PO_4)_2(OH)_2$, mon., pale yellow, structurally related to the silicates of the *Gadolinite* group, **65**, 809 (1980), **74**, 951 (1989)

☐ **Drysdallite**, $Mo(Se,S)_2$, hex., compare **Molybdenite** and **Tungstenite**, **59**, 1139 (1974)

☐ **Dufrenite**, $Fe^{2+}Fe_4^{3+}(PO_4)_3(OH)_5 \cdot 2H_2O$, mon., compare **Burangaite**, **Natrodufrenite**

☐ **Dufrenoysite**, $Pb_2As_2S_5$, mon.

☐ **Duftite**, $PbCu(AsO_4)(OH)$, orth., green, *Adelite* group, **42**, 123 (1957)

☐ **Dugganite**, $Pb_3(Zn,Cu^{2+})_3(Te^{6+}O_6)(AsO_4)(OH)_3$, hex., colorless to green, **63**, 1016–1019 (1978)

☐ **Duhamelite**, $Pb_2Cu_4^{2+}Bi(VO_4)_4(OH)_3 \cdot 8H_2O$, orth., yellow-green, **67**, 414 (1982)

☐ **Dumontite**, $Pb_2(UO_2)_3O_2(PO_4)_2 \cdot 5H_2O$, mon., yellow, compare **Hügelite**, **10**, 131 (1925), **74**, 1403 (1989)

☐ **Dumortierite**, $Al_7(BO_3)(SiO_4)_3O_3$, orth., blue, violet, related to **Holtite**

☐ **Dundasite**, $PbAl_2(CO_3)_2(OH)_4 \cdot H_2O$, orth.

☐ **Durangite**, $NaAl(AsO_4)F$, mon., orange-red, compare **Lacroixite**, forms a series with **Maxwellite**

☐ **Duranusite**, As_4S, orth., red, **60**, 945 (1975)

☐ **Dussertite**, $BaFe^{3+}_3(AsO_4)_2(OH)_5$, trig., green, *Crandallite* group, **28**, 63 (1943)

☐ **Duttonite**, $V^{4+}O(OH)_2$, mon., **42**, 455–460 (1957)

☐ **Dwornikite**, $(Ni,Fe^{2+})SO_4 \cdot H_2O$, mon., *Kieserite* group, **68**, 642 (1983)

☐ **Dypingite**, $Mg_5(CO_3)_4(OH)_2 \cdot 5H_2O$, mon. (?), **55**, 1457–1465 (1970)

Dysanalyte = niobian **Perovskite**

☐ **Dyscrasite**, Ag_3Sb, orth.

☐ **Dzhalindite**, $In(OH)_3$, cub., compare **Söhngeite**, **49**, 439 (1964)

Dzhezkazganite, a lead rhenium sulfide (?), **48**, 209 (1963)

E

☐ **Eakerite**, $Ca_2Sn^{4+}Al_2Si_6O_{18}(OH)_2 \cdot 2H_2O$, mon., **56**, 637 (1971), **61**, 956–962 (1976)

☐ **Earlandite**, $Ca_3(C_6H_5O_7)_2 \cdot 4H_2O$, (calcium citrate), **22**, 71 (1937)

☐ **Earlshannonite**, $(Mn^{2+},Fe^{2+})Fe_2^{3+}(PO_4)_2(OH)_2 \cdot 4H_2O$, mon., reddish-brown, *Arthurite* group, **70**, 871–872 (1985)

☐ **Ecandrewsite**, $(Zn,Fe^{2+},Mn^{2+})TiO_3$, trig., dark brown to black, *Ilmenite* group, **74**, 501 (1989)

☐ **Ecdemite**, $Pb_6As_2^{3+}O_7Cl_4$, tet., yellow

☐ **Eckermannite**, $Na_3(Mg,Fe^{2+})_4AlSi_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, $Fe^{3+}/(Fe^{3+} + Al) = 0–0.5$, forms a series with **Ferro-eckermannite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Eclarite**, $Pb_9(Cu,Fe)Bi_{12}S_{28}$, orth., **70**, 215 (1985)

☐ **Edenharterite**, $PbTlAs_3S_6$, orth., brownish-black, streak red, *Eur. J. Min.* **4**, 1265–1270 (1992), **78**, 845–846 (1993)

☐ **Edenite**, $NaCa_2(Mg,Fe^{2+})_5Si_7AlO_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$. forms a series with **Ferro-edenite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Edgarbaileyite**, $Hg_6^{1+}Si_2O_7$, mon., yellow to dark green, *Mineral. Rec.* **21**, 215–220 (1990), **75**, 1192–1196 (1990)

☐ **Edingtonite**, $BaAl_2Si_3O_{10} \cdot 4H_2O$, orth. and tet., *Zeolite* group, **70**, 1333–1334 (1985)

☐ **Edoylerite**, $Hg_3^{2+}Cr^{6+}O_4S_2$, mon., canary yellow to orangish yellow, *Mineral. Rec.* **24**, 471–475 (1993)

☐ **Efremovite**, $(NH_4)_2Mg2(SO_4)_3$, cub., compare **Langbeinite** and **Manganolangbeinite**, **76**, 299–300 (1991)

☐ **Eggletonite**, $(Na,K,Ca)_2(Mn,Fe)_8(Si,Al)_{12}O_{29}(OH)_7 \cdot 11H_2O$, mon., brown, compare **Ganophyllite**, *Min. Mag.* **48**, 93–96 (1984), **70**, 436 (1985)

☐ **Eglestonite**, $Hg_6^{1+}Cl_3O(OH)$ or $Hg_4^{1+}Cl_2O$, cub., brownish-yellow, **62**, 396 (1977)

☐ **Ehrleite**, $Ca_2ZnBe(PO_4)_2(PO_3OH)\cdot 4H_2O$, tric., **74**, 504–505 (1989)

☐ **Eifelite**, $KNa_3Mg_4Si_{12}O_{30}$, hex., forms a series with **Roedderite**, *Osumilite* group, **66**, 218 (1981), **69**, 566 (1984)

☐ **Eitelite**, $Na_2Mg(CO_3)_2$, trig., compare **Bütschliite**, **40**, 326 (1955)

☐ **Ekanite**, $ThCa_2Si_8O_{20}$, tet., compare **Iraqite**, **Steacyite**, **46**, 1516 (1961)

☐ **Ekaterinite**, $Ca_2B_4O_7(Cl,OH)_2\cdot 2H_2O$, hex., **66**, 437 (1981)

☐ **Elbaite**, $Na(Li,Al)_3Al_6(BO_3)_3Si_6O_{18}(OH)_4$, trig., pink, green, forms a series with **Dravite**, *Tourmaline* group

Electrum, (Au,Ag), cub., part of the series **Gold-Silver**

☐ **Ellenbergerite**, $Mg_6TiAl_6Si_8O_{28}(OH)_{10}$, hex., purple, **73**, 190–191 (1988)

Ellestadite, the series **Fluorellestadite-Hydroxylellestadite**, **22**, 977–986 (1937), **67**, 90–96 (1982)

☐ **Ellisite**, Tl_3AsS_3, trig., **64**, 701–707 (1979)

☐ **Elpasolite**, K_2NaAlF_6, cub., **33**, 84–87 (1948)

☐ **Elpidite**, $Na_2ZrSi_6O_{15}\cdot 3H_2O$, orth.

☐ **Elyite**, $Pb_4Cu^{2+}(SO_4)(OH)_8$, mon., violet, **57**, 364–367 (1972)

Embolite, Ag(Cl,Br), cub. (= bromian **Chlorargyrite** or chlorian **Bromargyrite**)

☐ **Embreyite**, $Pb_5(CrO_4)_2(PO_4)_2\cdot H_2O$, mon., orange, **58**, 806 (1973)

☐ **Emeleusite**, $Na_4Li_2Fe_2^{3+}Si_{12}O_{30}$, orth., ps. hex., *Osumilite* group, **64**, 242 (1979)

Emerald, a deep green gem var. of **Beryl**

☐ **Emmonsite**, $Fe_2^{3+}Te_3^{4+}O_9\cdot 2H_2O$, tric., yellow-green, *Mineral. Rec.* **3**, 82–84 (1972)

☐ **Emplectite**, $CuBiS_2$, orth., compare **Chalcostibite**

☐ **Empressite**, AgTe, orth., pale bronze, **49**, 325–328 (1964)

☐ **Enargite**, Cu_3AsS_4, orth., dimorph. with **Luzonite**

☐ **Endellite** (Hydrohalloysite), $Al_2Si_2O_5(OH)_4 \cdot 2H_2O$, mon., *Kaolinite-Serpentine* group, **28**, 1–18 (1943), **40**, 1110–1118 (1955) (Called Halloysite in European literature)

Endlichite = arsenatian **Vanadinite**

☐ **Englishite**, $K_3Na_2Ca_{10}Al_{15}(PO_4)_{21}(OH)_7 \cdot 26H_2O$, orth., **15**, 307–337 (1930), **70**, 1334 (1985)

Enigmatite = **Aenigmatite**

☐ **Enstatite**, $Mg_2Si_2O_6$, orth., forms a series with **Ferrosilite**, dimorph. with **Clinoenstatite**, *Pyroxene* group

☐ **Eosphorite**, $Mn^{2+}Al(PO_4)(OH)_2 \cdot H_2O$, mon., pink, forms a series with **Childrenite**

☐ **Ephesite**, $NaLiAl_2(Al_2Si_2)O_{10}(OH)_2$, mon. or tric., *Mica* group, **52**, 1689–1696 (1967)

☐ **Epididymite**, $NaBeSi_3O_7(OH)$, orth., dimorph. with **Eudidymite**

☐ **Epidote**, $Ca_2(Fe^{3+},Al)_3(SiO_4)_3(OH)$, mon., forms a series with **Clinozoisite**, *Epidote* group

☐ **Epistilbite**, $CaAl_2Si_6O_{16} \cdot 5H_2O$, mon., dimorph. with **Goosecreekite**, *Zeolite* group, **59**, 1055–1061 (1974), **73**, 1434–1439 (1988)

☐ **Epistolite**, $Na_2(Nb,Ti)_2Si_2O_9 \cdot nH_2O$, tric.

☐ **Epsomite**, $MgSO_4 \cdot 7H_2O$, orth., compare **Goslarite**, **Morenosite**

☐ **Erdite**, $NaFeS_2 \cdot 2H_2O$, mon., copper-red, **65**, 509–521 (1980)

☐ **Ericaite**, $(Fe^{2+},Mg,Mn)_3B_7O_{13}Cl$, orth., red, forms a series with **Boracite**, dimorph. with **Congolite**, compare **Chambersite**, **41**, 372 (1956)

☐ **Ericssonite**, $BaMn_2^{2+}(Fe^{3+}O)Si_2O_7(OH)$, mon., reddish-black, dimorph. with **Orthoericssonite**, **56**, 2157 (1971)

☐ **Eriochalcite**, $Cu^{2+}Cl_2 \cdot 2H_2O$, orth., blue-green

☐ **Erionite**, $(K_2,Ca,Na_2)_2Al_4Si_{14}O_{36} \cdot 15H_2O$, hex., *Zeolite* group, **61**, 853–863 (1976)

☐ **Erlianite**, $(Fe^{2+},Mg)_4(Fe^{3+},V^{3+})_2Si_6O_{15}(OH,O)_8$, orth., black, **72**, 1023–1024 (1987)

☐ **Erlichmanite**, OsS_2, cub., forms a series with **Laurite**, *Pyrite* group, **56**, 1501–1506 (1971)

☐ **Ernienickelite**, $Ni^{2+}Mn_3^{4+}O_7 \cdot 3H_2O$, trig., black with a red-brown cast, compare **Chalcophanite**, *Can. Min.* **32**, 333–337 (1994)

☐ **Erniggliite**, $Tl_2SnAs_2S_6$, hex., **78**, 845–846 (1993)

☐ **Ernstite**, $(Mn_{1-x}^{2+}Fe_x^{3+})Al(PO_4)(OH)_{2-x}O_x$, mon., yellow-brown, **56**, 637 (1971)

☐ **Ertixiite**, $Na_2Si_4O_9$, cub., **71**, 1544 (1986)

☐ **Erythrite**, $Co_3(AsO_4)_2 \cdot 8H_2O$, mon., pink to red, forms two series, with **Annabergite**, and with **Hörnesite**, *Vivianite* group

☐ **Erythrosiderite**, $K_2Fe^{3+}Cl_5 \cdot H_2O$, orth., red, compare **Kremersite**

Eschynite = **Aeschynite**

☐ **Eskebornite**, $CuFeSe_2$, tet., forms a series with **Chalcopyrite**, *Chalcopyrite* group, **57**, 1560 (1972), **74**, 1403 (1989)

☐ **Eskimoite**, $Ag_7Pb_{10}Bi_{15}S_{36}$, mon., **64**, 243–244 (1979)

☐ **Eskolaite**, Cr_2O_3, trig., black to blackish-green, *Hematite* group, **43**, 1098–1106 (1958)

☐ **Esperite**, $PbCa_3Zn_4(SiO_4)_4$, mon., **13**, 334 (1928), **50**, 1170–1178 (1965)

☐ **Esseneite**, $CaFe^{3+}AlSiO_6$, mon., reddish-brown, *Pyroxene* group, **72**, 148–156 (1987)

☐ **Ettringite**, $Ca_6Al_2(SO_4)_3(OH)_{12}\cdot 26H_2O$, hex., *Ettringite* group

☐ **Eucairite**, CuAgSe, orth.

☐ **Euchlorine**, $KNaCu_3^{2+}(SO_4)_3O$, mon., emerald-green, *Min. Abs.* **42**, 22 (1991)

☐ **Euchroite**, $Cu_2^{2+}(AsO_4)(OH)\cdot 3H_2O$, orth., emerald-green

☐ **Euclase**, $BeAlSiO_4(OH)$, mon.

Eucolite = **Eudialyte**

☐ **Eucryptite**, $LiAlSiO_4$, trig.

☐ **Eudialyte**, $Na_4(Ca,Ce)_2(Fe^{2+},Mn^{2+},Y)ZrSi_8O_{22}(OH,Cl)_2$ (?), trig., compare **Alluaivite**

☐ **Eudidymite**, $NaBeSi_3O_7(OH)$, mon., dimorph. with **Epididymite**

☐ **Eugenite**, $Ag_{11}Hg_2$, cub.

☐ **Eugsterite**, $Na_4Ca(SO_4)_3\cdot 2H_2O$, mon. (?), **66**, 632–636 (1981)

☐ **Eulytite**, $Bi_4(SiO_4)_3$, cub.

☐ **Euxenite-(Y)**, $(Y,Ca,Ce,U,Th)(Nb,Ta,Ti)_2O_6$, orth., brownish-black, compare **Tanteuxenite-(Y)**, **Yttrocrasite-(Y)**

☐ **Evansite**, $Al_3(PO_4)(OH)_6\cdot 6H_2O$ (?), amor.

☐ **Eveite**, $Mn_2^{2+}(AsO_4)(OH)$, orth., apple-green, compare **Adamite**, **55**, 319 (1970)

☐ **Evenkite**, $C_{24}H_{50}$ (n-tetracosane), mon., **40**, 368 (1955), **50**, 2109 (1965)

☐ **Ewaldite**, $Ba(Ca,Y,Na,K)(CO_3)_2$, hex., bluish-green, **56**, 2156 (1971)

☐ **Eylettersite**, $(Th,Pb)_{1-x}Al_3(PO_4,SiO_4)_2(OH)_6$ (?), trig., *Crandallite* group, **56**, 1366 (1971), **59**, 208 (1974)

☐ **Ezcurrite**, $Na_4B_{10}O_{17}\cdot 7H_2O$, tric., **42**, 919 (1957)

☐ **Eztlite**, $Pb_2Fe_6^{3+}(Te^{4+}O_3)_3(Te^{6+}O_6)(OH)_{10}\cdot 8H_2O$, mon., blood-red, **68**, 471 (1983)

F

☐ **Fabianite**, $CaB_3O_5(OH)$, mon., **48**, 212 (1963)

☐ **Faheyite**, $(Mn^{2+},Mg)Fe_2^{3+}Be_2(PO_4)_4 \cdot 6H_2O$, hex., **38**, 263–270, 349 (1953), **49**, 395–398 (1964)

☐ **Fahleite**, $Zn_5CaFe_2^{3+}(AsO_4)_6 \cdot 14H_2O$, orth. (?), fib., yellow to gray to green, compare **Smolianinovite**, **74**, 501–502 (1989)

Fahlerz, Fahlore = **Tetrahedrite-Tennantite** series

☐ **Fairbankite**, $PbTe^{4+}O_3$, tric., dimorph. with **Plumbotellurite**, **65**, 809 (1980)

☐ **Fairchildite**, $K_2Ca(CO_3)_2$, hex., dimorph. with **Bütschliite**, **32**, 607–624 (1947)

☐ **Fairfieldite**, $Ca_2(Mn^{2+},Fe^{2+})(PO_4)_2 \cdot 2H_2O$, tric., *Fairfieldite* group

☐ **Falcondoite**, $(Ni,Mg)_4Si_6O_{15}(OH)_2 \cdot 6H_2O$, orth., greenish, compare **Sepiolite**, *Can. Min.* **14**, 407–409 (1976)

Falkmanite, $Pb_5Sb_4S_{11}$, mon., = **Boulangerite (?)**, **69**, 411 (1984)

☐ **Famatinite**, Cu_3SbS_4, tet., *Stannite* group

☐ **Fangite**, Tl_3AsS_4, orth., deep red to maroon, **78**, 1096–1103 (1993)

☐ **Farringtonite**, $Mg_3(PO_4)_2$, mon., **46**, 1513 (1961)

Fassaite, ferrian aluminian **Diopside** or **Augite**, *Pyroxene* group

☐ **Faujasite**, $(Na_2,Ca)Al_2Si_4O_{12} \cdot 8H_2O$, cub., *Zeolite* group

☐ **Faustite**, $(Zn,Cu^{2+})Al_6(PO_4)_4(OH)_8 \cdot 4H_2O$, tric., apple-green, *Turquoise* group, **38**, 964–972 (1953)

☐ **Fayalite**, $Fe_2^{2+}SiO_4$, orth., forms two series, with **Forsterite**, and with **Tephroite**, *Olivine* group

☐ **Fedorite**, $KNa_4Ca_4(Si,Al)_{16}O_{36}(OH)_4 \cdot 6H_2O$, tric., **52**, 561 (1967)

☐ **Fedorovskite**, $Ca_5(Mg,Mn)_2B_4O_7(OH)_6$, orth., forms a series with **Roweite**, **62**, 173 (1977)

☐ **Fedotovite**, $K_2Cu_3^{2+}O(SO_4)_3$, mon., green, **75**, 240–241 (1990)

☐ **Feitknechtite**, β-$Mn^{3+}O(OH)$, hex., trimorph. with **Groutite** and **Manganite**, **50**, 1296–1354 (1965)

Feldspar, see *Feldspar* group

Feldspath = *Feldspar*

☐ **Felsöbanyaite** (Felsöbanyite), $Al_4(SO_4)(OH)_{10}\cdot 5H_2O$, orth. (?), **50**, 812 (1965)

Felspar = *Feldspar*

Femolite = ferrian **Molybdenite** (?), **50**, 261 (1965)

☐ **Fenaksite**, $(K,Na,Ca)_3(Fe^{2+},Fe^{3+},Mn^{2+})_2Si_8O_{20}(OH,F)$, tric., rose, compare **Manaksite**, **45**, 252 (1960)

☐ **Ferberite**, $Fe^{2+}WO_4$, mon., forms a series with **Hübnerite**, compare **Sanmartinite**

☐ **Ferchromide**, Cr_3Fe_{1-x}, (x = 0.6), cub., **73**, 191 (1988)

Ferdisilicite, $FeSi_2$, cub., **54**, 1737 (1969)

☐ **Fergusonite-beta-(Ce)**, $(Ce,La,Nd)NbO_4$, mon., dimorph. with **Fergusonite-(Ce)**, **60**, 485 (1975), **62**, 397 (1977)

☐ **Fergusonite-beta-(Nd)**, $(Nd,Ce)NbO_4$, mon., dimorph. with **Fergusonite-(Nd)**, **69**, 406–407 (1984)

☐ **Fergusonite-beta-(Y)**, $YNbO_4$, mon., dimorph. with **Fergusonite-(Y)**

☐ **Fergusonite-(Ce)**, $(Ce,La,Y)NbO_4$, tet., dimorph. with **Fergusonite-beta-(Ce)**, **74**, 946 (1989)

☐ **Fergusonite-(Nd)**, $(Nd,Ce)(Nb,Ti)O_4$, tet., dimorph. with **Fergusonite-beta-(Nd)**, **74**, 946–947 (1989)

☐ **Fergusonite-(Y)**, $YNbO_4$, tet., forms a series with **Formanite-(Y)**, dimorph. with **Fergusonite-beta-(Y)**

☐ **Fermorite**, $(Ca,Sr)_5(AsO_4,PO_4)_3(OH)$, hex., *Apatite* group

☐ **Fernandinite**, $Ca(V^{5+},V^{4+},Fe^{2+})_8O_{20}\cdot 4H_2O$, mon., green, compare **Corvusite**, *Can. Min.* **32**, 339–351 (1994)

☐ **Feroxyhyte**, delta-$Fe^{3+}O(OH)$, hex., trimorph. with **Goethite** and **Lepidocrocite**, compare **Akaganeite**, **62**, 1057 (1977)

☐ **Ferrarisite**, $Ca_5H_2(AsO_4)_4\cdot 9H_2O$, tric., dimorph. with **Guerinite**, **66**, 637 (1981)

Ferrazite, $(Pb,Ba)_3(PO_4)_2\cdot 8H_2O$ (?), **5**, 39 (1920)

☐ **Ferri-annite**, $K(Fe^{2+},Mg)_3(Fe^{3+},Al)Si_3O_{10}(OH)_2$, mon., *Mica* group, **67** 1179–1194 (1982)

☐ **Ferricopiapite**, $Fe^{3+}_{2/3}Fe^{3+}_4(SO_4)_6(OH)_2\cdot 20H_2O$, tric., *Copiapite* group, **24**, 182 (1939)

Ferridravite = **Povondraite**, **78**, 433–436 (1993)

☐ **Ferrierite**, $(Na,K)_2Mg(Si,Al)_{18}O_{36}(OH)\cdot 9H_2O$, orth. and mon., *Zeolite* group, **4**, 90 (1919), **70**, 619 (1985)

Ferrifayalite = **Laihunite**, **63**, 424–425 (1978)

☐ **Ferrihydrite**, nominally $5Fe_2O_3\cdot 9H_2O$, trig., **60**, 485–486 (1975), **75**, 437 (1990)

☐ **Ferrikatophorite**, $Na_2Ca(Fe^{2+},Mg)_4Fe^{3+}Si_7AlO_{22}(OH)_2$, $Mg/(Mg + Fe^{2+}) = 0$–0.49. forms a series with **Aluminokatophorite**, compare **Magnesio-aluminokatophorite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrilotharmeyerite**, $Ca(Zn,Cu)(Fe^{3+},Zn)(AsO_3OH)_2(OH)_3$, mon., brownish-yellow, compare **Lotharmeyerite**, **77**, 1305–1306 (1992)

☐ **Ferrimolybdite**, $Fe^{3+}_2(Mo^{6+}O_4)_3\cdot 8H_2O$ (?), orth. (?), yellow, **48**, 14–32 (1963)

☐ **Ferrinatrite**, $Na_3Fe^{3+}(SO_4)_3\cdot 3H_2O$, trig.

☐ **Ferripyrophyllite**, $Fe_2^{3+}Si_4O_{10}(OH)_2$, mon., compare **Pyrophyllite**, *Min. Abs.* **31**, 355–356 (1980)

☐ **Ferrisicklerite**, $Li(Fe^{3+},Mn^{2+})PO_4$, orth., forms a series with **Sicklerite**, **22**, 875 (1937), **26**, 681 (1941)

☐ **Ferristrunzite**, $Fe^{3+}Fe_2^{3+}(PO_4)_2(OH)_3 \cdot 5H_2O$, tric., brownish-yellow, compare **Ferrostrunzite**, **Strunzite**, **74**, 502 (1989)

☐ **Ferrisurite**, $(Pb,Ca)_{2-3}(CO_3)_{1.5-2}(OH,F)_{0.5-1}[(Fe^{3+},Al)_2Si_4O_{10}(OH)_2] \cdot nH_2O$, mon., yellow-green, compare **Surite**, **77**, 1107–1111 (1992)

☐ **Ferrisymplesite**, $Fe_3^{3+}(AsO_4)_2(OH)_3 \cdot 5H_2O$, amor., **10**, 134 (1925)

☐ **Ferritungstite**, $(K,Ca,Na)(W^{6+},Fe^{3+})(O,OH)_6 \cdot H_2O$, cub., yellow, **42**, 83–90 (1957), *Mineral. Rec.* **12**, 82–85 (1981)

☐ **Ferri-winchite**, $CaNaMg_4Fe^{3+}Si_8O_{22}(OH)_2$, mon., *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferro-actinolite**, $Ca_2(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.5$, forms a series with **Tremolite** and **Actinolite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferro-alluaudite**, $NaCaFe^{2+}(Fe^{2+},Mn^{2+},Fe^{3+})_2(PO_4)_3$, mon., forms a series with **Alluaudite**, *Alluaudite* group, *Min. Mag.* **43**, 227–235 (1979)

☐ **Ferro-anthophyllite**, $(Fe^{2+},Mg)_7Si_8O_{22}(OH)_2$, orth., $Fe^{2+}/(Fe^{2+} + Mg) = 0.9–1.0$, forms a series with **Magnesio-anthophyllite** and **Anthophyllite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferro-axinite**, $Ca_2Fe^{2+}Al_2BSi_4O_{15}(OH)$, tric., forms a series with **Manganaxinite**, *Axinite* group

☐ **Ferrobarroisite**, $NaCa(Fe^{2+},Mg)_3Al_2(Si_7Al)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Barroisite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrobustamite**, $Ca(Fe^{2+},Ca,Mn^{2+})Si_2O_6$, tric., compare **Bustamite**, **59**, 632 (1974)

☐ **Ferrocarpholite**, $(Fe^{2+},Mg)Al_2Si_2O_6(OH)_4$, orth. or mon., dark green, forms two series, with **Carpholite**, and with **Magnesiocarpholite**, **36**, 736–745 (1951), **78**, 453–454 (1993)

☐ **Ferroclinoholmquistite**, $Li_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.09$, dimorph. with **Ferroholmquistite**, forms a series with **Magnesioclinoholmquistite** and **Clinoholmquistite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrocolumbite**, $Fe^{2+}Nb_2O_6$, orth., forms two series, with **Ferrotantalite**, and with **Manganocolumbite**, compare **Magnocolumbite**

Ferrocopiapite = **Copiapite**

☐ **Ferro-eckermannite**, $Na_3(Fe^{2+},Mg)_4AlSi_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, $Fe^{3+}/(Fe^{3+} + Al) = 0–0.5$, forms a series with **Eckermannite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferro-edenite**, $NaCa_2(Fe^{2+},Mg)_5(Si_7Al)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Edenite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferro-ferri-tschermakite**, $Ca_2(Fe^{2+},Mg)_3Fe^{3+}_2(Si_6Al_2)O_{22}(OH)_2$, mon., *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrogedrite**, $(Fe^{2+},Mg)_5Al_2(Si_6Al_2)O_{22}(OH)_2$, orth., $Fe^{2+}/(Mg + Fe^{2+}) = 0.9–1.0$, forms a series with **Magnesiogedrite** and **Gedrite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferroglaucophane**, $Na_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Glaucophane**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrohexahydrite**, $Fe^{2+}SO_4 \cdot 6H_2O$, mon., *Hexahydrite* group, **48**, 433 (1963)

☐ **Ferroholmquistite**, $Li_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$, orth., $Fe^{2+}/(Mg + Fe^{2+}) = 0.9–1.0$, dimorph. with **Ferroclinoholmquistite**, forms a series with **Magnesioholmquistite** and **Holmquistite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrohornblende**, $Ca_2(Fe^{2+},Mg)_4Al(Si_7Al)O_{22}(OH,F)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Magnesiohornblende**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrokaersutite**, $NaCa_2(Fe^{2+},Mg)_4Ti(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Kaersutite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrokesterite**, $Cu_2(Fe,Zn)SnS_4$, tet., dimorph. with **Stannite**, compare **Kesterite**

☐ **Ferronickelplatinum**, Pt_2FeNi, tet., forms a series with **Tulameenite**, **69**, 1190–1191 (1984)

☐ **Ferropargasite**, $NaCa_2(Fe^{2+},Mg)_4Al(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.29$, forms a series with **Pargasite**, *Amphibole* group, **63**, 1023–1052 (1978)

Ferropumpellyite = **Pumpellyite-(Fe^{2+})**

☐ **Ferropyrosmalite**, $(Fe^{2+},Mn^{2+})_8Si_6O_{15}(OH,Cl)_{10}$, hex., forms a series with **Manganpyrosmalite**, **73**, 933–934 (1988)

☐ **Ferrorichterite**, $Na_2Ca(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Richterite**, *Amphibole* group, **63**, 1023–1052 (1978)

Ferroschallerite = **Nelenite**, **70**, 874–875 (1985)

☐ **Ferroselite**, $FeSe_2$, orth., *Marcasite* group, **41**, 671 (1956)

☐ **Ferrosilite** (Orthoferrosilite), $(Fe^{2+},Mg)_2Si_2O_6$, orth., dark green, forms a series with **Enstatite**, dimorph. with **Clinoferrosilite**, *Pyroxene* group

☐ **Ferrostrunzite**, $Fe^{2+}Fe^{3+}_2(PO_4)_2(OH)_2 \cdot 6H_2O$, tric., brown, compare **Ferristrunzite**, **Strunzite**, **69**, 811 (1984)

Ferroszaibelyite = ferroan **Szaibelyite**, $(Mg,Fe^{2+})BO_2(OH)$

☐ **Ferrotantalite**, $Fe^{2+}Ta_2O_6$, orth., forms two series, with **Manganotantalite**, and with **Ferrocolumbite**, dimorph. with **Ferrotapiolite**

☐ **Ferrotapiolite**, $(Fe^{2+},Mn^{2+})(Ta,Nb)_2O_6$, tet., forms a series with **Manganotapiolite**, *Ferrotapiolite* group, **70**, 217 (1985)

☐ **Ferrotschermakite**, $Ca_2(Fe^{2+},Mg)_3Al_2(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Tschermakite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrotychite**, $Na_6Fe^{2+}_2(SO_4)(CO_3)_4$, cub., forms a series with **Tychite**, compare **Northupite**, **67**, 414–415 (1982)

☐ **Ferrowinchite**, $NaCa(Fe^{2+},Mg)_4AlSi_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Winchite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Ferrowodginite**, $Fe^{2+}Sn^{4+}Ta_2O_8$, mon., dark brown to black, compare **Wodginite**, **Lithiowodginite**, **Titanowodginite**, *Can. Min.* **30**, 633–638 (1992), **78**, 848 (1993)

☐ **Ferrowyllieite**, $(Na,Ca,Mn)(Fe^{2+},Mn)(Fe^{2+},Fe^{3+},Mg)Al(PO_4)_3$, mon., forms two series, with **Wyllieite**, and with **Rosemaryite**, compare **Qingheiite**, **65**, 810–811 (1980)

☐ **Ferruccite**, $NaBF_4$, orth., **19**, 555 (1934)

Fersilicite, FeSi, cub., **54**, 1737 (1969)

☐ **Fersmanite**, $(Ca,Na)_4(Ti,Nb)_2Si_2O_{11}(F,OH)_2$, tric., **16**, 92 (1931), **64**, 658–659 (1979)

☐ **Fersmite**, $(Ca,Ce,Na)(Nb,Ta,Ti)_2(O,OH,F)_6$, orth., **32**, 373 (1947)

☐ **Feruvite**, $Ca(Fe^{2+},Mg)_3(Al,Mg)_6(BO_3)_3Si_6O_{18}(OH)_4$, trig., brown-black, *Tourmaline* group, **75**, 706–707 (1990)

☐ **Fervanite**, $Fe_4^{3+}(VO_4)_4 \cdot 5H_2O$, mon., **16**, 273–277 (1931)

☐ **Fibroferrite**, $Fe^{3+}(SO_4)(OH) \cdot 5H_2O$, mon.

☐ **Fichtelite**, $C_{19}H_{34}$, (dimethyl-isopropyl-perhydrophenanthrene), mon.

☐ **Fiedlerite**, $Pb_3Cl_4(OH) \cdot H_2O$, tric. and mon., two polytypes are known: **Fiedlerite-1*A*** and **Fiedlerite-2*M***, *Min. Mag.* **58**, 69–78 (1994)

☐ **Filipstadite**, $(Mn^{2+},Mg)_4Sb^{5+}Fe^{3+}O_8$, orth., black, **73**, 413–419 (1988)

☐ **Fillowite**, $Na_2Ca(Mn^{2+},Fe^{2+})_7(PO_4)_6$, mon., compare **Chladniite** and **Johnsomervilleite, 66**, 827–842 (1981)

☐ **Fingerite**, $Cu_{11}^{2+}(VO_4)_6O_2$, tric., black, **70**, 193–199 (1985)

☐ **Finnemanite**, $Pb_5(As^{3+}O_3)_3Cl$, hex., **8**, 230 (1923)

☐ **Fischesserite**, Ag_3AuSe_2, cub., compare **Petzite**, **57**, 1554 (1972)

☐ **Fizelyite**, $Pb_{14}Ag_5Sb_{21}S_{48}$ (?), mon., **15**, 83 (1930), **70**, 219–220 (1985)

☐ **Flagstaffite**, $C_{10}H_{22}O_3$ (cis-terpin hydrate), orth., **50**, 2109 (1965)

☐ **Fleischerite**, $Pb_3Ge^{4+}(SO_4)_2(OH)_6 \cdot 3H_2O$, hex., compare **Despujolsite**, **Schaurteite**, **45**, 1313 (1960)

☐ **Fletcherite**, $Cu(Ni,Co)_2S_4$, cub., *Linnaeite* group, **62**, 1057 (1977)

☐ **Flinkite**, $Mn_2^{2+}Mn^{3+}(AsO_4)(OH)_4$, orth.

☐ **Florencite-(Ce)**, $CeAl_3(PO_4)_2(OH)_6$, trig., *Crandallite* group

☐ **Florencite-(La)**, $(La,Ce)Al_3(PO_4)_2(OH)_6$, trig., *Crandallite* group, *Can. Min.* **18**, 301–311 (1980), **69**, 566 (1984)

☐ **Florencite-(Nd)**, $(Nd,Ce)Al_3(PO_4)_2(OH)_6$, trig., *Crandallite* group, *Mineral. Rec.* **2**, 166–168 (1971)

☐ **Florensovite**, $(Cu,Zn)(Cr,Sb)_2S_4$, cub., black, *Linnaeite* group, **75**, 1209–1210 (1990)

☐ **Fluckite**, $CaMn^{2+}H_2(AsO_4)_2 \cdot 2H_2O$, tric., pink, **65**, 1066 (1980)

☐ **Fluellite**, $Al_2(PO_4)F_2(OH) \cdot 7H_2O$, orth., **51**, 1579–1592 (1966)

☐ **Fluoborite**, $Mg_3(BO_3)(F,OH)_3$, hex., **12**, 266 (1927)

☐ **Fluocerite-(Ce)** (Tysonite), $(Ce,La)F_3$, hex.

☐ **Fluocerite-(La)**, $(La,Ce)F_3$, hex., greenish-yellow, **69**, 566 (1984)

☐ **Fluorapatite**, $Ca_5(PO_4)_3F$, hex., *Apatite* group

☐ **Fluorapophyllite**, $KCa_4Si_8O_{20}(F,OH) \cdot 8H_2O$, orth., ps. tet., forms a series with **Hydroxyapophyllite**, compare **Natroapophyllite**, **63**, 196–202 (1978), **77**, 1119 (1992)

☐ **Fluorellestadite**, $Ca_5(SiO_4,PO_4,SO_4)_3(F,OH,Cl)$, hex., forms a series with **Hydroxylellestadite**, compare **Chlorellestadite**, **Mattheddleite**, isostructural with the minerals of the *Apatite* group, **74**, 502–503 (1989)

☐ **Fluorite**, CaF_2, cub., compare **Frankdicksonite**

☐ **Fluorrichterite**, $Na_2Ca(Mg,Fe^{2+})_5Si_8O_{22}(F,OH)_2$, mon., light green to blue green, *Amphibole* group

Flusspat, German for **Fluorite**

☐ **Foggite**, $CaAl(PO_4)(OH)_2 \cdot H_2O$, orth., **60**, 957–964 (1975)

☐ **Foitite**, $\square[Fe^{2+}_2(Al,Fe^{3+})]Al_6Si_6O_{18}(BO_3)_3(OH)_4$, trig., *Tourmaline* group, **78**, 1299–1303 (1993)

☐ **Fontanite**, $Ca(UO_2)_3(CO_3)_4 \cdot 3H_2O$, orth., bright yellow, *Eur. J. Min.* **4**, 1271–1274 (1992), **78**, 846–847 (1993)

☐ **Foordite**, $Sn^{2+}(Nb,Ta)_2O_6$, mon., yellow-brown, forms a series with **Thoreaulite**, **75**, 707 (1990)

☐ **Formanite-(Y)**, $YTaO_4$, tet., dimorph. with **Yttrotantalite-(Y)**, forms a series with **Fergusonite-(Y)**, **29**, 456 (1944)

☐ **Fornacite**, $(Pb,Cu^{2+})_3[(Cr,As)O_4]_2(OH)$, mon., olive-green, compare **Molybdofornacite**, **Vauquelinite**, **49**, 447 (1964)

☐ **Forsterite**, Mg_2SiO_4, orth., forms a series with **Fayalite**, trimorph. with **Ringwoodite** and **Wadsleyite**, *Olivine* group

☐ **Foshagite**, $Ca_4Si_3O_9(OH)_2$, tric., **43**, 1–15 (1958)

☐ **Foshallasite**, $Ca_3Si_2O_7 \cdot 3H_2O$ (?), mon. (?), **23**, 667 (1938)

☐ **Fourmarierite**, $PbU^{6+}_4O_{13} \cdot 4H_2O$, orth., red, **45**, 1026–1061 (1960)

Fowlerite = zincian **Rhodonite**, $(Mn,Zn)SiO_3$

☐ **Fraipontite**, $(Zn,Al)_3(Si,Al)_2O_5(OH)_4$, mon., *Kaolinite-Serpentine* group, **62**, 175 (1977)

☐ **Francevillite**, $(Ba,Pb)(UO_2)_2V_2O_8 \cdot 5H_2O$, orth., yellow, forms a series with **Curienite**, **43**, 180 (1958)

☐ **Franciscanite**, $Mn^{2+}_3V^{5+}(SiO_4)(O,OH)_7$, hex., dark reddish-brown, compare **Örebroite**, **Welinite**, **71**, 1522–1526 (1986)

☐ **Francisite**, $Cu^{2+}_3Bi^{3+}(SeO_3)_2O_2Cl$, orth., bright green, **75**, 1421–1425 (1990)

☐ **Franckeite**, $(Pb,Sn^{2+})_6Fe^{2+}Sn_2^{4+}Sb_2^{3+}S_{14}$, tric., compare **Cylindrite**, **Incaite**, **Potosiite**

☐ **Francoanellite**, $H_6(K,Na)_3(Al,Fe^{3+})_5(PO_4)_8 \cdot 13H_2O$, trig., **61**, 1054 (1976)

☐ **Francoisite-(Nd)**, $(Nd,Y,Sm,Ce)(UO_2)_3(PO_4)_2O(OH) \cdot 6H_2O$, mon., yellow, **75**, 341 (1990)

Francolite = **Carbonate-fluorapatite**, *Apatite* group

☐ **Franconite**, $Na_2Nb_4O_{11} \cdot 9H_2O$, mon., **70**, 436–437 (1985)

☐ **Frankdicksonite**, BaF_2, cub., compare **Fluorite**, **59**, 885–888 (1974)

☐ **Franklinfurnaceite**, $Ca_2(Fe^{3+},Al)Mn^{3+}Mn_3^{2+}Zn_2Si_2O_{10}(OH)_8$, mon., dark brown, compare *Chlorite* group, **72**, 812–815 (1987), **73**, 876–887 (1988)

☐ **Franklinite**, $(Zn,Mn^{2+},Fe^{2+})(Fe^{3+},Mn^{3+})_2O_4$, cub., *Spinel* group

☐ **Franklinphilite**, $(K,Na)_4(Mn^{2+},Zn,Mg,Fe^{3+})_{48}(Si,Al)_{72}(O,OH)_{216} \cdot 6H_2O$, tric., dark brown, isostructural with **Stilpnomelane**, *Mineral. Rec.* **23**, 465–468 (1992), **78**, 672–673 (1993)

☐ **Fransoletite**, $H_2Ca_3Be_2(PO_4)_4 \cdot 4H_2O$, mon., dimorph. with **Parafransoletite**, **70**, 215 (1985)

☐ **Franzinite**, $(Na,Ca)_7(Si,Al)_{12}O_{24}(SO_4,CO_3,OH,Cl)_3 \cdot H_2O$, hex., *Cancrinite* group, **62**, 1259 (1977)

☐ **Freboldite**, CoSe, hex., *Nickeline* group, **41**, 164 (1956), **44**, 907 (1959)

☐ **Fredrikssonite**, $Mg_2(Mn^{3+},Fe^{3+})(BO_5)O_2$, orth., black, *Ludwigite* group, polymorph. with **Orthopinakiolite**, **Pinakiolite**, and **Takeuchiite**, **71**, 227 (1986), *Can. Min.* **32**, 397–403 (1994)

☐ **Freedite**, $Pb_8Cu^{1+}(As^{3+}O_3)_2O_3Cl_5$, mon., greenish-yellow, **70**, 845–848 (1985), **73**, 667 (1988)

☐ **Freibergite**, $(Ag,Cu,Fe)_{12}(Sb,As)_4S_{13}$, cub., forms two series, with **Argentotennantite**, and with **Tetrahedrite**, *Tetrahedrite* group, **60**, 489 (1975)

☐ **Freieslebenite**, $AgPbSbS_3$, mon., compare **Laffittite**, **Marrite**, **58**, 141 (1973)

☐ **Fresnoite**, $Ba_2TiSi_2O_8$, tet., **50**, 314–340 (1965)

☐ **Freudenbergite**, $Na_2(Ti,Fe)_8O_{16}$, mon., ps. hex., **46**, 765 (1961)

☐ **Friedelite**, $Mn_8^{2+}Si_6O_{15}(OH,Cl)_{10}$, mon., ps. trig., related to **Caryopilite**, compare **Mcgillite**

☐ **Friedrichite**, $Pb_5Cu_5Bi_7S_{18}$, orth., **64**, 654 (1979)

☐ **Fritzscheite**, $Mn^{2+}(UO_2)_2[(P,V)O_4]_2 \cdot 10H_2O$ (?), tet., *Autunite* group

☐ **Frohbergite**, $FeTe_2$, orth., forms a series with **Mattagamite**, *Marcasite* group, **32**, 210 (1947)

☐ **Frolovite**, $CaB_2(OH)_8$, tric., **43**, 385 (1958)

☐ **Frondelite**, $Mn^{2+}Fe_4^{3+}(PO_4)_3(OH)_5$, orth., forms a series with **Rockbridgeite**, **34**, 541–549 (1949)

☐ **Froodite**, $PdBi_2$, mon., **44**, 207 (1959)

Fuchsite = chromian **Muscovite**

☐ **Fukalite**, $Ca_4Si_2O_6(CO_3)(OH,F)_2$, orth., **63**, 793 (1978)

☐ **Fukuchilite**, $(Cu,Fe)S_2$, cub., *Pyrite* group, **55**, 1811 (1970), **74**, 1168–1176 (1989)

☐ **Fülöppite**, $Pb_3Sb_8S_{15}$, mon., **15**, 201–202 (1930)

☐ **Furongite**, $Al_2(UO_2)(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., yellow, **63**, 425 (1978), **73**, 198 (1988)

☐ **Furutobeite**, $(Cu,Ag)_6PbS_4$, mon., **67**, 1075 (1982)

G

☐ **Gabrielsonite,** $PbFe^{2+}(AsO_4)(OH)$, orth., *Adelite* group, **53**, 1063–1064 (1968)

Gadolinite, see *Gadolinite* group

☐ **Gadolinite-(Ce)**, $(Ce,La,Nd,Y)_2Fe^{2+}Be_2Si_2O_{10}$, mon., *Gadolinite* group, **63**, 188–195 (1978)

☐ **Gadolinite-(Y)**, $Y_2Fe^{2+}Be_2Si_2O_{10}$, mon., *Gadolinite* group

☐ **Gagarinite-(Y)**, $NaCaY(F,Cl)_6$, hex., **47**, 805 (1962)

☐ **Gageite**, $(Mn^{2+},Mg,Zn)_{42}Si_{16}O_{54}(OH)_{40}$, mon. and tric., polytypes **-1*A*** and **-2*M***, compare **Balangeroite**, **64**, 1056–1058 (1979), **72**, 382–391 (1987)

☐ **Gahnite**, $ZnAl_2O_4$, cub., forms two series, with **Spinel**, and with **Hercynite**, *Spinel* group

☐ **Gaidonnayite**, $Na_2ZrSi_3O_9{\cdot}2H_2O$, orth., dimorph. with **Catapleiite**, compare **Georgechaoite**, *Can. Min.* **12**, 316–319 (1974)

☐ **Gainesite**, $Na_2(Zr,Zn)_2(Be,Li)(PO_4)_4$, tet., pale bluish-lavender, **68**, 1022–1028 (1983)

☐ **Gaitite**, $Ca_2Zn(AsO_4)_2{\cdot}2H_2O$, tric., forms a series with **Talmessite**, dimorph. with **Zincroselite**, *Fairfieldite* group, **66**, 1274 (1981)

☐ **Galaxite**, $(Mn^{2+},Fe^{2+},Mg)(Al,Fe^{3+})_2O_4$, cub., *Spinel* group, **17**, 1–8 (1932)

☐ **Galeite**, $Na_{15}(SO_4)_5F_4Cl$, trig., **48**, 485–510 (1963), **56**, 174 (1971)

☐ **Galena** (Galenite), PbS, cub., forms a series with **Clausthalite**, compare **Altaite**

☐ **Galenobismutite**, $PbBi_2S_4$, orth.

☐ **Galkhaite**, $(Cs,Tl)(Hg,Cu,Zn)_6(As,Sb)_4S_{12}$, cub., dark orange-red, **59**, 208 (1974), **68**, 474 (1983)

☐ **Gallite**, $CuGaS_2$, tet., *Chalcopyrite* group, **44**, 906 (1959)

☐ **Gamagarite**, $Ba_2(Fe^{3+},Mn^{3+})(VO_4)_2(OH)$, mon., *Brackebuschite* group, **28**, 329–335 (1943), **69**, 503–505 (1984)

☐ **Gananite**, BiF_3, brown to greenish-black, **73**, 1494 (1988)

☐ **Ganomalite**, $Pb_9Ca_5Mn^{2+}Si_9O_{33}$, hex., **72**, 1028 (1987)

☐ **Ganophyllite**, $(K,Na)_2(Mn,Al,Mg)_8(Si,Al)_{12}O_{29}(OH)_7 \cdot 8–9H_2O$, mon., compare **Eggletonite**

☐ **Garavellite**, $FeSbBiS_4$, orth., **64**, 1329–1330 (1979)

Garnet, see *Garnet* group

Garnierite, a general term for hydrous nickel silicates

☐ **Garrelsite**, $Ba_3NaSi_2B_7O_{16}(OH)_4$, mon., **41**, 672 (1956), **59**, 632 (1974)

☐ **Garronite**, $Na_2Ca_5Al_{12}Si_{20}O_{64} \cdot 27H_2O$, tet., *Zeolite* group, **48**, 711 (1963)

☐ **Gartrellite**, $Pb(Cu^{2+},Fe^{2+})_2(AsO_4,SO_4)_2(CO_3,H_2O)_{0.7}$, tric., bright yellow to greenish-yellow, **75**, 932 (1990)

☐ **Garyansellite**, $(Mg,Fe^{3+})_3(PO_4)_2(OH,O) \cdot 1.5H_2O$, orth., brown, forms a series with **Kryzhanovskite**, **69**, 207–209 (1984)

☐ **Gasparite-(Ce)**, $(Ce,La,Nd)AsO_4$, mon., brownish-red, *Monazite* group, **73**, 1494–1495 (1988)

☐ **Gaspeite**, $(Ni,Mg,Fe^{2+})CO_3$, trig., light green, forms a series with **Magnesite**, *Calcite* group, **51**, 677–684 (1966)

☐ **Gatehousite**, $Mn_2^{2+}(PO_4)_2(OH)_4$, orth., pale yellow to pale brownish orange, compare **Arsenoclasite**, **79**, 185 (1994)

☐ **Gatumbaite**, $CaAl_2(PO_4)_2(OH)_2 \cdot H_2O$, mon., **63**, 793–794 (1978)

☐ **Gaudefroyite**, $Ca_4Mn^{3+}_{3-x}(BO_3)_3(CO_3)(O,OH)_3$, hex., **50**, 806 (1965)

☐ **Gaylussite**, $Na_2Ca(CO_3)_2 \cdot 5H_2O$, mon.

☐ **Gearksutite**, $CaAl(OH)F_4 \cdot H_2O$, mon.

☐ **Gebhardite**, $Pb_8(As_2^{3+}O_5)_2OCl_6$, mon., **70**, 215 (1985)

☐ **Gedrite**, $(Mg,Fe^{2+})_5Al_2(Si_6Al_2)O_{22}(OH)_2$, orth., $Mg/(Mg + Fe^{2+}) = 0.1–0.89$, forms a series with **Magnesiogedrite** and **Ferrogedrite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Geerite**, Cu_8S_5, ps. cub., **66**, 1274 (1981)

☐ **Geffroyite**, $(Ag,Cu,Fe)_9(Se,S)_8$, cub., *Pentlandite* group, **67**, 1074–1075 (1982)

☐ **Gehlenite**, $Ca_2Al(AlSi)O_7$, tet., forms a series with **Akermanite**, *Melilite* group

☐ **Geigerite**, $Mn_5^{2+}(As^{5+}O_4)_2(As^{5+}O_3OH)_2 \cdot 10H_2O$, tric., rose-red, compare **Chudobaite**, **74**, 676–684 (1989)

☐ **Geikielite**, $MgTiO_3$, trig., brownish-black, forms a series with **Ilmenite**, *Ilmenite* group

☐ **Geminite**, $Cu_2^{2+}As_2^{5+}O_7 \cdot 3H_2O$, tric., bright green to sea-green, **77**, 671 (1992)

Geneveite = **Theisite** (?), **69**, 1191 (1984)

☐ **Genkinite**, $(Pt,Pd)_4Sb_3$, tet., **64**, 654 (1979)

☐ **Genthelvite**, $Zn_4Be_3(SiO_4)_3S$, cub., forms two series, with **Danalite**, and with **Helvite**, **29**, 163–191 (1944)

Genthite = Garnierite

☐ **Geocronite**, $Pb_{14}(Sb,As)_6S_{23}$, mon., forms a series with **Jordanite**, **61**, 963–970 (1976)

☐ **Georgechaoite**, $KNaZrSi_4O_9 \cdot 2H_2O$, orth., compare **Gaidonnayite**, **71**, 227 (1986)

☐ **Georgeite**, $Cu_2^{2+}(CO_3)(OH)_2 \cdot 6H_2O$, amor., sky-blue, **64**, 1330 (1979)

☐ **Georgiadesite**, $Pb_{16}(AsO_4)_4Cl_{14}O_2(OH)_2$, or $Pb_{16}(AsO_4)_4Cl_{14}(OH)_6$, mon., **69**, 815 (1984)

☐ **Gerasimovskite**, $(Mn^{2+},Ca)(Nb,Ti)_5O_{12}\cdot 9H_2O$ (?), amor., forms a series with **Manganbelyankinite**, **43**, 1220 (1958)

☐ **Gerdtremmelite**, $(Zn,Fe^{2+})(Al,Fe^{3+})_2(AsO_4)(OH)_5$, tric., yellow-brown to dark brown, **71**, 845 (1986)

☐ **Gerhardtite**, $Cu_2^{2+}(NO_3)(OH)_3$, orth., dark green

☐ **Germanite**, $Cu_{13}Fe_2Ge_2S_{16}$, cub., reddish-gray, *Colusite* group, **74**, 951 (1989)

☐ **Germanocolusite**, $Cu_{26}V_2(Ge,As)_6S_{32}$, cub., *Colusite* group, **79**, 387 (1994)

☐ **Gersdorffite**, NiAsS, cub., compare **Jolliffeite**, *Cobaltite* group

☐ **Gerstleyite**, $Na_2(Sb,As)_8S_{13}\cdot 2H_2O$, mon., dark red, **41**, 839–843 (1956)

☐ **Gerstmannite**, $(Mg,Mn^{2+})_2ZnSiO_4(OH)_2$, orth., pink, **62**, 51–59 (1977)

☐ **Getchellite**, $AsSbS_3$, mon., dark red, **50**, 1817–1826 (1965)

☐ **Geversite**, $Pt(Sb,Bi)_2$, cub., *Pyrite* group, **46**, 1518 (1961)

☐ **Gianellaite**, $Hg_4(SO_4)N_2$, cub., straw-yellow, **62**, 1057 (1977)

☐ **Gibbsite**, $Al(OH)_3$, mon., polymorph., with **Bayerite**, **Doyleite**, and **Nordstrandite**

☐ **Giessenite**, $Pb_{13}(Cu,Ag)(Bi,Sb)_9S_{28}$ (?), mon., **50**, 264 (1965), **72**, 229 (1987)

☐ **Gilalite**, $Cu_5^{2+}Si_6O_{17}\cdot 7H_2O$, mon., green to pale blue-green, **65**, 1065 (1980)

☐ **Gillespite**, $BaFe^{2+}Si_4O_{10}$, tet., red, **14**, 319–322 (1929)

☐ **Gillulyite**, $Tl_2(As,Sb)_8S_{13}$, mon., deep red, **76**, 653–655 (1991)

☐ **Giniite**, $Fe^{2+}Fe_2^{3+}(PO_4)_4(OH)_2\cdot 2H_2O$, mon., blackish-green to blackish-brown, **65**, 1066 (1980)

☐ **Ginorite**, $Ca_2B_{14}O_{23}\cdot 8H_2O$, mon., compare **Strontioginorite**, **20**, 403 (1935)

Ginzburgite = **Roggianite**

Giobertite = **Magnesite**

☐ **Giorgiosite**, $Mg_5(CO_3)_4(OH)_2 \cdot 5H_2O$ (?)

Gips = German for **Gypsum**

☐ **Giraudite**, $(Cu,Zn,Ag)_{12}(As,Sb)_4(Se,S)_{13}$, cub., *Tetrahedrite* group, **67**, 1074–1075 (1982)

☐ **Girdite**, $Pb_3H_2(Te^{4+}O_3)(Te^{6+}O_6)$, mon., **65**, 809 (1980)

☐ **Girvasite**, $NaCa_2Mg_3(PO_4)_2[PO_2(OH)_2](CO_3)(OH)_2 \cdot 4H_2O$, mon., **76**, 669 (1991)

☐ **Gismondine**, $Ca_2Al_4Si_4O_{16} \cdot 9H_2O$, mon., *Zeolite* group

☐ **Gittinsite**, $CaZrSi_2O_7$, mon., **66**, 1274–1275 (1981)

☐ **Giuseppettite**, $(Na,K,Ca)_{7-8}(Si,Al)_{12}O_{24}(SO_4Cl)_{1-2}$, hex., *Cancrinite* group, **67**, 415 (1982)

☐ **Gladite**, $PbCuBi_5S_9$, orth., **61**, 15–20 (1976)

Glaserite = **Aphthitalite**

☐ **Glauberite**, $Na_2Ca(SO_4)_2$, mon.

Glauber's salt = **Mirabilite**

☐ **Glaucocerinite**, $(Zn,Cu^{2+})_{10}Al_6(SO_4)_3(OH)_{32} \cdot 18H_2O$, hex., blue, **17**, 495 (1932), **19**, 556 (1934), **72**, 1028 (1987)

☐ **Glaucochroite**, $CaMn^{2+}SiO_4$, orth., bluish-green, compare **Kirschsteinite**, **Monticellite**

☐ **Glaucodot**, (Co,Fe)AsS, orth., ps. cub., dimorph. with **Alloclasite**, *Arsenopyrite* group

☐ **Glauconite**, $(K,Na)(Fe^{3+},Al,Mg)_2(Si,Al)_4O_{10}(OH)_2$, mon., *Mica* group

☐ **Glaucophane**, $Na_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$, mon., Mg/(Mg + Fe^{2+}) = 0.5–1.0, blue, forms a series with **Ferroglaucophane**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Glaukosphaerite**, $(Cu,Ni)_2(CO_3)(OH)_2$, mon., green, *Rosasite* group, *Min. Mag.* **39**, 737–743 (1974)

Glimmer = German for **Mica**

☐ **Glucine**, $CaBe_4(PO_4)_2(OH)_4 \cdot 0.5H_2O$, **49**, 1152 (1964)

☐ **Glushinskite**, $Mg(C_2O_4) \cdot 2H_2O$, (an oxalate), mon., **66**, 439 (1981)

☐ **Gmelinite**, $(Na_2,Ca)Al_2Si_4O_{12} \cdot 6H_2O$, hex., flesh-red, *Zeolite* group

☐ **Gobbinsite**, $Na_4(Ca,Mg,K_2)Al_6Si_{10}O_{32} \cdot 12H_2O$, orth., ps. tet., *Zeolite* group, **68**, 642–643 (1983)

☐ **Godlevskite**, $(Ni,Fe)_7S_6$, orth., **55**, 317–318 (1970)

☐ **Godovikovite**, $(NH_4)(Al,Fe^{3+})(SO_4)_2$, hex., white, **75**, 241–242 (1990)

☐ **Goedkenite**, $(Sr,Ca)_2Al(PO_4)_2(OH)$, mon., *Brackebuschite* group, **60**, 957–964 (1975)

Goergyite = **Görgeyite**

☐ **Goethite**, alpha-$Fe^{3+}O(OH)$, orth., trimorph. with **Feroxyhyte**, and **Lepidocrocite**, compare **Akaganeite**, **Bracewellite**, **Diaspore**

☐ **Gold**, Au, cub., yellow, forms a series with **Silver-3*C***

γ-Goldamalgam, (Au,Ag)Hg, cub., brass-yellow, **70**, 215–216 (1985)

☐ **Goldfieldite**, $Cu_{12}(Te,Sb,As)_4S_{13}$, cub., *Tetrahedrite* group

☐ **Goldichite**, $KFe^{3+}(SO_4)_2 \cdot 4H_2O$, mon., pale green, **40**, 469–480 (1955)

☐ **Goldmanite**, $Ca_3(V,Al,Fe^{3+})_2(SiO_4)_3$, cub., *Garnet* group, **49**, 644–655 (1964)

☐ **Gonnardite**, $Na_2CaAl_4Si_6O_{20} \cdot 7H_2O$, orth., *Zeolite* group

☐ **Gonyerite**, $(Mn^{2+},Mg)_5Fe^{3+}(Si_3Fe^{3+})O_{10}(OH)_8$, orth. (?), *Chlorite* group, **40**, 1090–1094 (1955)

☐ **Goosecreekite**, $CaAl_2Si_6O_{16}\cdot 5H_2O$, mon., dimorph. with **Epistilbite**, *Zeolite* group, **66**, 1275 (1981)

☐ **Gorceixite**, $BaAl_3(PO_4)(PO_3OH)(OH)_6$, mon., ps. trig., *Crandallite* group

☐ **Gordonite**, $MgAl_2(PO_4)_2(OH)_2\cdot 8H_2O$, tric., compare **Mangangordonite**, *Paravauxite* group, **15**, 307–337 (1930)

☐ **Görgeyite**, $K_2Ca_5(SO_4)_6\cdot H_2O$, mon., **39**, 403 (1954)

☐ **Gormanite**, $Fe_3^{2+}Al_4(PO_4)_4(OH)_6\cdot 2H_2O$, tric., blue-green, forms a series with **Souzalite**, **67**, 622–623 (1982)

☐ **Gortdrumite**, $(Cu,Fe)_6Hg_2S_5$, orth., **69**, 407 (1984)

Goshenite, a var. of **Beryl**

☐ **Goslarite**, $ZnSO_4\cdot 7H_2O$, orth., compare **Epsomite**, **Morenosite**

☐ **Götzenite**, $Na_2Ca_5Ti(Si_2O_7)_2F_4$, tric., **43**, 740 (1958), **45**, 221 (1960), compare **Hainite**

☐ **Goudeyite**, $(Al,Y)Cu_6^{2+}(AsO_4)_3(OH)_6\cdot 3H_2O$, hex., yellow-green, *Mixite* group, **63**, 704–708 (1978)

☐ **Gowerite**, $CaB_6O_{10}\cdot 5H_2O$, mon., **44**, 911–919 (1959), **57**, 381–396 (1972)

☐ **Goyazite**, $SrAl_3(PO_4)_2(OH)_5\cdot H_2O$, trig., *Crandallite* group

☐ **Graemite**, $Cu^{2+}Te^{4+}O_3\cdot H_2O$, orth., blue-green, *Mineral. Rec.* **6**, 32–34 (1975), **60**, 486 (1975)

☐ **Graftonite**, $(Fe^{2+},Mn^{2+},Ca)_3(PO_4)_2$, mon., pink to brown, compare **Beusite**

Granat = German for *Garnet*

☐ **Grandidierite**, $(Mg,Fe^{2+})Al_3(BO_4)(SiO_4)O$, orth., bluish-green

Grandite, the series **Grossular-Andradite**, *Garnet* group

☐ **Grandreefite**, $Pb_2(SO_4)F_2$, mon., **74**, 927–933 (1989), **76**, 278–282 (1991)

☐ **Grantsite**, $NaCa(V^{5+},V^{4+})_6O_{16}\cdot 4H_2O$, mon., **49**, 1511–1526 (1964), **75**, 508–521 (1990)

☐ **Graphite**, C, hex. and trig., polymorph. with **Chaoite**, **Diamond**, and **Lonsdaleite**

☐ **Gratonite**, $Pb_9As_4S_{15}$, trig., **25**, 255–270 (1940)

☐ **Gravegliaite**, $Mn^{2+}(SO_3)\cdot 3H_2O$ (a sulfite), orth., *Zeit. Krist.* **197**, 97–106 (1991) (Eng.), **77**, 672 (1992)

☐ **Grayite**, $(Th,Pb,Ca)PO_4\cdot H_2O$, ps. hex., *Rhabdophane* group, **47**, 419 (1962)

☐ **Grechishchevite**, $Hg_3S_2(Br,Cl,I)_2$, tet., reddish orange, turning black on exposure, **76**, 1729–1730 (1991)

☐ **Greenalite**, $(Fe^{2+},Fe^{3+})_{2-3}Si_2O_5(OH)_4$, mon., *Kaolinite-Serpentine* group, **20**, 405–425 (1935), **21**, 449–455 (1936)

☐ **Greenockite**, CdS, hex., yellow, dimorph. with **Hawleyite**, compare **Cadmoselite**, **Wurtzite**

Gregoryite, $(Na_2,K_2,Ca)CO_3$, **66**, 879 (1981)

☐ **Greigite**, $Fe^{2+}Fe_2^{3+}S_4$, cub., *Linnaeite* group, **49**, 543–555 (1964)

☐ **Griceite**, LiF, cub., *Can. Min.* **27**, 125–127 (1989)

☐ **Grimaldiite**, $Cr^{3+}O(OH)$, trig., deep red, trimorph. with **Bracewellite** and **Guyanaite**, compare **Heterogenite**, **62**, 593 (1977)

☐ **Grimselite**, $K_3Na(UO_2)(CO_3)_3\cdot H_2O$, hex., yellow, **58**, 139 (1973)

☐ **Griphite**, $Na_4Ca_6(Mn,Fe^{2+},Mg)_{19}Li_2Al_8(PO_4)_{24}(F,OH)_8$, cub., **64**, 1333 (1979)

☐ **Grischunite**, $NaCa_2Mn_2^{2+}Fe^{3+}(AsO_4)_6\cdot 2H_2O$, orth., reddish-brown, **71**, 227–228 (1986), **72**, 1225–1229 (1987)

☐ **Grossite**, $CaAl_4O_7$, mon., *Eur. J. Min.* **6**, 591–594 (1994)

☐ **Grossular**, $Ca_3Al_2(SiO_4)_3$, cub., forms three series, with **Andradite**, with **Hibschite** and **Katoite**, and with **Uvarovite**, *Garnet* group

☐ **Groutite**, $Mn^{3+}O(OH)$, orth., trimorph. with **Manganite** and **Feitknechtite**, **32**, 654–659 (1947)

Grovesite = **Pennantite**, **41**, 164 (1956), **59**, 1153–1156 (1974)

☐ **Grumantite**, $NaHSi_2O_5 \cdot H_2O$, orth., **73**, 440 (1988)

☐ **Grunerite**, $(Fe^{2+},Mg)_7Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.3$, forms a series with **Magnesiocummingtonite** and **Cummingtonite**, *Amphibole* group, **63**, 1023–1052 (1978)

Grünlingite, a mixt. of **Joseite** and **Bismuthinite**, **67**, 855 (1982)

☐ **Gruzdevite**, $Cu_6Hg_3Sb_4S_{12}$, trig., forms a series with **Aktashite**, compare **Nowackiite**, **67**, 855 (1982)

☐ **Guanajuatite**, Bi_2Se_3, orth., dimorph. with **Paraguanajuatite**, compare **Bismuthinite**, **Stibnite**

Guanglinite, Pd_3As, tet. (?), (= **Isomertieite** (?)), **61**, 184 (1976), **65**, 408 (1980)

☐ **Guanine**, $C_5H_3(NH_2)N_4O$, (2-amino-6-hydroxypurine), mon., *Min. Mag.* **39**, 889–890 (1974)

☐ **Guarinoite**, $(Zn,Co,Ni)_6(SO_4)(OH,Cl)_{10} \cdot 5H_2O$, hex., bright to deep pink, **78**, 1314–1315 (1993)

☐ **Gudmundite**, FeSbS, mon., *Arsenopyrite* group, **13**, 592 (1928)

☐ **Guerinite**, $Ca_5H_2(AsO_4)_4 \cdot 9H_2O$, mon., dimorph. with **Ferrarisite**, **47**, 416 (1962), **50**, 812 (1965)

☐ **Guettardite**, $Pb(Sb,As)_2S_4$, mon., dimorph. with **Twinnite**, **53**, 1425 (1968), *Can. Min.* **18**, 13–15 (1980)

☐ **Gugiaite**, $Ca_2BeSi_2O_7$, tet., dimorph. with **Jeffreyite**, *Melilite* group, **48**, 211–212 (1963)

☐ **Guildite**, $CuFe^{3+}(SO_4)_2(OH) \cdot 4H_2O$, mon. or tric., brown, compare **Chaidamuite**, **55**, 501 (1970)

☐ **Guilleminite**, $Ba(UO_2)_3(SeO_3)_2(OH)_4 \cdot 3H_2O$, orth., canary-yellow, **50**, 2103 (1965)

Gummite, a general term for secondary uranium oxides, yellow, orange, **41**, 539–568 (1956)

☐ **Gunningite**, $(Zn,Mn^{2+})SO_4 \cdot H_2O$, mon., *Kieserite* group, **47**, 1218 (1962)

☐ **Gupeiite**, Fe_3Si, cub., **71**, 228 (1986)

☐ **Gustavite**, $PbAgBi_3S_6$ (?), orth., forms a series with **Lillianite**, **56**, 633 (1971), *Can. Min.* **13**, 411–414 (1975)

Gutsevichite, $(Al,Fe^{3+})_3(PO_4,VO_4)_2(OH)_3 \cdot 8H_2O$ (?), **46**, 1200 (1961)

☐ **Guyanaite**, $Cr^{3+}O(OH)$, orth., reddish-brown, trimorph. with **Bracewellite** and **Grimaldiite**, **62**, 593 (1977)

☐ **Gypsum**, $CaSO_4 \cdot 2H_2O$, mon., compare **Ardealite**, **Brushite**, **Pharmacolite**

☐ **Gyrolite**, $NaCa_{16}(Si_{23}Al)O_{60}(OH)_5 \cdot 15H_2O$, tric., ps. hex., compare **Orlymanite**

☐ **Gysinite-(Nd)**, $Pb(Nd,La)(CO_3)_2(OH) \cdot H_2O$, orth., compare **Ancylite-(Ce)**, **Calcio-ancylite-(Ce)**, **70**, 1314–1317 (1985)

☐ **Haapalaite**, $4(Fe,Ni)S \cdot 3(Mg,Fe^{2+})(OH)_2$, hex., bronze-red, compare **Tochilinite**, **Valleriite**, **Yushkinite**, **58**, 1111–1112 (1973)

Hackmanite, a var. of **Sodalite**

☐ **Hafnon**, $HfSiO_4$, tet., compare **Zircon**, **61**, 175 (1976)

☐ **Hagendorfite**, $NaCaMn^{2+}(Fe^{2+},Fe^{3+},Mg)_2(PO_4)_3$, mon., forms a series with **Varulite**, *Alluaudite* group, **40**, 553 (1955), *Min. Mag.* **43**, 227–235 (1979)

☐ **Häggite**, $V_2O_2(OH)_3$, mon., **45**, 1144–1166 (1960)

☐ **Haidingerite**, $CaHAsO_4 \cdot H_2O$, orth.

☐ **Hainite**, $Na_4Ca_8(Ti,Zr,Mn^{2+})_3Si_8O_{28}F_8$, tric., bright yellow, compare **Götzenite**, **75**, 936 (1990)

☐ **Haiweeite**, $Ca(UO_2)_2Si_6O_{15} \cdot 5H_2O$, mon., yellow, **44**, 839–843 (1959)

☐ **Hakite**, $(Cu,Hg,Ag)_{12}Sb_4(Se,S)_{13}$, cub., *Tetrahedrite* group, **57**, 1553 (1972)

☐ **Halite**, NaCl, cub.

☐ **Hallimondite**, $Pb_2(UO_2)(AsO_4)_2$, tric., yellow, **50**, 1143–1157 (1965)

☐ **Halloysite**, $Al_2Si_2O_5(OH)_4$, mon., polymorph. with **Dickite**, **Kaolinite**, **Nacrite**, *Kaolinite-Serpentine* group, (Halloysite in European usage = **Endellite**)

☐ **Halotrichite**, $Fe^{2+}Al_2(SO_4)_4 \cdot 22H_2O$, mon., forms a series with **Pickeringite**, *Halotrichite* group

☐ **Halurgite**, $Mg_2[B_4O_5(OH)_4]_2 \cdot H_2O$, mon., **47**, 1217 (1962)

☐ **Hambergite**, $Be_2BO_3(OH)$, orth.

☐ **Hammarite**, $Pb_2Cu_2Bi_4S_9$, formula approximate, orth., **10**, 157 (1925), **61**, 15–20 (1976)

☐ **Hancockite**, $(Pb,Ca,Sr)_2(Al,Fe^{3+})_3(SiO_4)_3(OH)$, mon., brownish-red, *Epidote* group

☐ **Hanksite**, $KNa_{22}(SO_4)_9(CO_3)_2Cl$, hex.

☐ **Hannayite**, $(NH_4)_2Mg_3H_4(PO_4)_4 \cdot 8H_2O$, tric., **48**, 635–641 (1963)

☐ **Hannebachite**, $2CaSO_3 \cdot H_2O$ (a sulfite), orth., **73**, 928 (1988)

☐ **Haradaite**, $SrV^{4+}Si_2O_7$, orth., green, compare *Suzukiite*, **56**, 1123 (1971), **60**, 340 (1975)

☐ **Hardystonite**, $Ca_2ZnSi_2O_7$, tet., *Melilite* group

☐ **Harkerite**, $Ca_{24}Mg_8Al_2(SiO_4)_8(BO_3)_6(CO_3)_{10} \cdot 2H_2O$, cub., compare **Sakhaite**, **37**, 359 (1952), **62**, 263–272 (1977)

☐ **Harmotome**, $(Ba,K)_{1-2}(Si,Al)_8O_{16} \cdot 6H_2O$, mon., *Zeolite* group, compare **Phillipsite**, **Wellsite**

☐ **Harrisonite**, $Ca(Fe^{2+},Mg)_6(SiO_4)_2(PO_4)_2$, trig., yellow-brown to orange-brown, *Can. Min.* **31**, 775–780 and 781–785 (1993)

☐ **Harstigite**, $Ca_6(Mn^{2+},Mg)Be_4(SiO_4)_2(Si_2O_7)_2(OH)_2$, orth.

☐ **Hashemite**, $Ba(Cr,S)O_4$, orth., dark brown, *Barite* group, **68**, 1223–1225 (1983), **71**, 1217–1220 (1986)

☐ **Hastingsite**, $NaCa_2(Fe^{2+},Mg)_4Fe^{3+}(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.69$, forms a series with **Magnesiohastingsite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Hastite**, $CoSe_2$, orth., dimorph. with **Trogtalite**, *Marcasite* group, **41**, 164 (1956)

Hatchettolite = **Uranpyrochlore**, **46**, 1519 (1961), **62**, 406 (1977)

☐ **Hatchite**, $(Pb,Tl)_2AgAs_2S_5$, tric., compare **Wallisite**, **49**, 446 (1964), **56**, 361–362 (1971)

☐ **Hatrurite**, Ca_3SiO_5, ps. hex., **63**, 425 (1978)

☐ **Hauchecornite**, $Ni_9Bi(Sb,Bi)S_8$, tet., *Hauchecornite* group, **66**, 436–437 (1981)

☐ **Hauckite**, $(Mg,Mn^{2+})_{24}Zn_{18}Fe^{3+}_{3}(SO_4)_4(CO_3)_2(OH)_{81}$ (?), hex., orange to yellow, **65**, 192–195 (1980)

☐ **Hauerite**, MnS_2, cub., *Pyrite* group

☐ **Hausmannite**, $Mn^{2+}Mn^{3+}_{2}O_4$, tet., brownish-black, compare **Hetaerolite**

☐ **Hauyne**, $(Na,Ca)_{4-8}Al_6Si_6(O,S)_{24}(SO_4,Cl)_{1-2}$, cub., *Sodalite* group

☐ **Hawleyite**, CdS, cub., yellow, dimorph. with **Greenockite**, *Sphalerite* group, **40**, 555–559 (1955)

☐ **Hawthorneite**, $Ba(Ti_3Cr_4Fe^{2+}_{2}Fe^{3+}_{2}Mg)O_{19}$, hex., black, *Magnetoplumbite* group, **74**, 668–673 (1989)

☐ **Haxonite**, $(Fe,Ni)_{23}C_6$, cub., **59**, 209 (1974)

☐ **Haycockite**, $Cu_4Fe_5S_8$, orth., **57**, 689–708 (1972)

☐ **Haynesite**, $(UO_2)_3(SeO_3)_2(OH)_2 \cdot 5H_2O$, orth., amber yellow, *Can. Min.* **29**, 561–564 (1991)

☐ **Heazlewoodite**, Ni_3S_2, trig., bronze, **32**, 484 (1947)

☐ **Hectorfloresite**, $Na_9(IO_3)(SO_4)_4$, mon., ps. hex., **74**, 1207–1214 (1989)

☐ **Hectorite**, $Na_{0.3}(Mg,Li)_3Si_4O_{10}(F,OH)_2$, mon., *Smectite* group

☐ **Hedenbergite**, $CaFe^{2+}Si_2O_6$, mon., green, forms two series, with **Diopside**, and with **Johannsenite**, *Pyroxene* group

☐ **Hedleyite**, Bi_7Te_3, trig., **48**, 435 (1963)

☐ **Hedyphane**, $Pb_3Ca_2(AsO_4)_3Cl$, hex., *Apatite* group, **69**, 920 (1984)

☐ **Heideite**, $(Fe,Cr)_{1+x}(Ti,Fe)_2S_4$, mon., **59**, 465–470 (1974)

☐ **Heidornite**, $Na_2Ca_3B_5O_8(SO_4)_2Cl(OH)_2$, mon., **42**, 120 (1957)

☐ **Heinrichite**, $Ba(UO_2)_2(AsO_4)_2 \cdot 10–12H_2O$, tet., green, *Autunite* group, **43**, 1134–1143 (1958)

☐ **Hejtmanite**, $Ba(Mn^{2+},Fe^{2+})_2TiO(Si_2O_7)(OH,F)_2$, mon., brownish- to golden-yellow, compare **Bafertisite**, **77**, 1306 (1992)

Heliodor, a var. of **Beryl**

☐ **Heliophyllite**, $Pb_6As^{3+}_2O_7Cl_4$ (?), orth., yellow

☐ **Hellandite**, $(Ca,Y)_6(Al,Fe^{3+})Si_4B_4O_{20}(OH)_4$, mon., compare **Tadzhikite-(Y)**, **59**, 212 (1974), **62**, 89–100 (1977)

☐ **Hellyerite**, $NiCO_3{\cdot}6H_2O$, tric., light blue, **44**, 533–538 (1959)

☐ **Helmutwinklerite**, $PbZn_2(AsO_4)_2{\cdot}2H_2O$, tric., sky blue, related to **Thometzekite** and **Tsumcorite**, **65**, 1067 (1980)

☐ **Helvite**, $Mn^{2+}_3Be_3(SiO_4)_3S$, cub., yellow, forms two series, with **Danalite**, and with **Genthelvite**

☐ **Hematite**, α-Fe_2O_3, trig., dimorph. with **Maghemite**, *Hematite* group

☐ **Hematolite**, $(Mn^{2+},Mg,Al)_{15}(AsO_3)(AsO_4)_2(OH)_{23}$, trig., brownish-red, **63**, 150–159 (1978)

☐ **Hematophanite**, $Pb_4Fe^{3+}_3O_8(OH,Cl)$, tet., **59**, 384 (1974)

☐ **Hemihedrite**, $Pb_{10}Zn(CrO_4)_6(SiO_4)_2F_2$, tric., orange, forms a series with **Iranite**, **55**, 1088–1102 (1970)

☐ **Hemimorphite**, $Zn_4Si_2O_7(OH)_2{\cdot}H_2O$, orth.

☐ **Hemloite**, $(As^{3+},Sb^{3+})_2(Ti,V^{3+},Fe^{2+},Fe^{3+})_{12}O_{23}(OH)$, tric., black, *Can. Min.* **27**, 427–440 (1989)

☐ **Hemusite**, $Cu^{1+}_4Cu^{2+}_2Sn^{4+}Mo^{4+}S_8$, cub., compare **Kiddcreekite**, **56**, 1847–1854 (1971)

☐ **Hendersonite**, $Ca_3(V^{5+},V^{4+})_{12}O_{32}{\cdot}12H_2O$, orth., **47**, 1252–1272 (1962), **75**, 508–521 (1990)

☐ **Hendricksite**, $K(Zn,Mg,Mn^{2+})_3(Si_3Al)O_{10}(OH)_2$, mon., *Mica* group, **51**, 1107–1123 (1966)

☐ **Heneuite**, $CaMg_5(PO_4)_3(CO_3)(OH)$, tric., pale blue-green, **73**, 440 (1988)

☐ **Henmilite**, $Ca_2Cu^{2+}[B(OH)_4]_2(OH)_4$, tric., bluish-violet, **71**, 1234–1239 (1986)

☐ **Hennomartinite**, $SrMn_2^{3+}Si_2O_7(OH)_2 \cdot H_2O$, orth., yellow-brown, compare **Lawsonite**, **77**, 1307 (1992), **79**, 763–764 (1994)

☐ **Henritermierite**, $Ca_3(Mn,Al)_2(SiO_4)_2(OH)_4$, tet., clove-brown, related to the *Garnet* group, **54**, 1739 (1969)

☐ **Henryite**, $Cu_4Ag_3Te_4$, cub., **70**, 216 (1985)

☐ **Hentschelite**, $Cu^{2+}Fe_2^{3+}(PO_4)_2(OH)_2$, mon., dark green, *Lazulite* group, **72**, 404–408 (1987)

☐ **Hercynite**, $Fe^{2+}Al_2O_4$, cub., forms three series, with **Spinel**, with **Gahnite**, and with **Chromite**, *Spinel* group

☐ **Herderite**, $CaBe(PO_4)F$, mon., forms a series with **Hydroxylherderite**, compare **Bergslagite**, structurally related to the silicates of the *Gadolinite* group

☐ **Herschelite**, $(Na,Ca,K)AlSi_2O_6 \cdot 3H_2O$, trig., compare **Chabazite**, *Zeolite* group, **47**, 985–987 (1962)

☐ **Herzenbergite**, SnS, orth., **20**, 541 (1935)

☐ **Hessite**, Ag_2Te, mon.

☐ **Hetaerolite**, $ZnMn_2^{3+}O_4$, tet., brownish-black, compare **Hausmannite**

☐ **Heterogenite**, $Co^{3+}O(OH)$, trig. and hex., polytypes are **-2*H*** and **-3*R***, compare **Grimaldiite**, **59**, 381 (1974)

☐ **Heteromorphite**, $Pb_7Sb_8S_{19}$, mon.

☐ **Heterosite**, $Fe^{3+}PO_4$, orth., rose to purple, forms a series with **Purpurite**

☐ **Heulandite**, $(Na,Ca)_{2-3}Al_3(Al,Si)_2Si_{13}O_{36} \cdot 12H_2O$, mon., *Zeolite* group

☐ **Hewettite**, $CaV_6^{5+}O_{16} \cdot 9H_2O$, mon., deep red, **75**, 508–521 (1990)

Hexagonite, a lavender var. of manganoan **Tremolite**

☐ **Hexahydrite**, $MgSO_4 \cdot 6H_2O$, mon., *Hexahydrite* group

☐ **Hexahydroborite**, $Ca[B(OH)_4]_2 \cdot 2H_2O$, mon., **63**, 1283 (1978)

☐ **Hexatestibiopanickelite**, Ni(Te,Sb), hex., **61**, 182 (1976), **76**, 2025–2026 (1991)

☐ **Heyite**, $Pb_5Fe_2^{2+}(VO_4)_2O_4$, mon., yellow-orange, **59**, 382 (1974)

☐ **Heyrovskyite**, $(Pb,Ag)_5Bi_7S_8$, orth., **57**, 325 (1972), *Can. Min.* **29**, 553–559 (1991)

☐ **Hibbingite**, γ-$Fe_2^{2+}(OH)_3Cl$, orth., compare **Atacamite** and **Kempite**, **79**, 555–561 (1994)

☐ **Hibonite**, $(Ca,Ce)(Al,Ti,Mg)_{12}O_{19}$, hex., *Magnetoplumbite* group, **42**, 119 (1957)

☐ **Hibschite**, $Ca_3Al_2(SiO_4)_{3-x}(OH)_{4x}$, (x = 0.2–1.5), cub., forms a series with **Grossular** and **Katoite**, *Garnet* group, **70**, 873 (1985)

☐ **Hidalgoite**, $PbAl_3(AsO_4)(SO_4)(OH)_6$, trig., *Beudantite* group, **38**, 1218–1224 (1953)

Hiddenite, a green gem var. of **Spodumene**

☐ **Hieratite**, K_2SiF_6, cub.

☐ **Hilairite**, $Na_2ZrSi_3O_9{\cdot}3H_2O$, trig., compare **Calciohilairite**, *Can. Min.* **12**, 237–246 (1974)

☐ **Hilgardite**, $Ca_2B_5O_9Cl{\cdot}H_2O$, mon. and tric., polytypes are **-1*A***, **-3*A*** and **-4*M***, **22**, 1052–1057 (1937), **23**, 765–771 (1938), **69**, 214 (1984), **70**, 636–637 (1985)

☐ **Hillebrandite**, $Ca_2SiO_3(OH)_2$, mon.

☐ **Hingganite-(Ce)**, $Ce_2Be_2Si_2O_8(OH)_2$, mon., *Gadolinite* group, **75**, 432 (1990)

☐ **Hingganite-(Y)**, $(Y,Yb,Er)_2Be_2Si_2O_8(OH)_2$, mon., *Gadolinite* group

☐ **Hingganite-(Yb)**, $(Yb,Y)_2Be_2Si_2O_8(OH)_2$, mon., *Gadolinite* group, **69**, 811 (1984)

☐ **Hinsdalite**, $(Pb,Sr)Al_3(PO_4)(SO_4)(OH)_6$, trig., *Beudantite* group

☐ **Hiortdahlite**, $(Ca,Na)_3(Zr,Ti)Si_2O_7(O,F)_2$, tric.

☐ **Hisingerite**, $Fe_2^{3+}Si_2O_5(OH)_4 \cdot 2H_2O$, mon.

Hjelmite, perhaps a mixt. of **Tapiolite** and **Pyrochlore**

☐ **Hocartite**, Ag_2FeSnS_4, tet., forms a series with **Pirquitasite**, *Stannite* group, **54**, 573 (1969)

☐ **Hochelagaite**, $(Ca,Na,Sr)Nb_4O_{11} \cdot 8H_2O$, mon., **72**, 1024 (1987)

☐ **Hodgkinsonite**, $Mn^{2+}Zn_2(SiO_4)(OH)_2$, mon.

☐ **Hodrushite**, $Cu_8Bi_{12}S_{22}$, mon., **56**, 633 (1971)

Hoegbomite = **Högbomite**

☐ **Hoelite**, $C_{14}H_8O_2$ (anthraquinone), orth., yellow

☐ **Högbomite**, $(Mg,Fe^{2+})_2(Al,Ti)_5O_{10}$, hex. and trig., **49**, 445 (1964)

☐ **Høgtuvaite**, $(Ca,Na)_3(Fe^{2+},Fe^{3+},Ti,Mg,Mn,Sn)_6(Si,Be,Al)_6O_{20}$, tric., ps. mon., *Aenigmatite* group, *Can. Min.* **32**, 439–448 (1994)

☐ **Hohmannite**, $Fe_2^{3+}(SO_4)_2(OH)_2 \cdot 7H_2O$, tric.

Hokutolite = plumboan **Barite**, $(Ba,Pb)SO_4$

☐ **Holdawayite**, $Mn_6^{2+}(CO_3)_2(OH)_7(Cl,OH)$, mon., pink, **73**, 632–643 (1988)

☐ **Holdenite**, $(Mn^{2+},Mg)_6Zn_3(AsO_4)_2(SiO_4)(OH)_8$, orth., pink to red, **62**, 513–521 (1977)

☐ **Hollandite**, $Ba(Mn^{4+},Mn^{2+})_8O_{16}$, mon., ps. tet., *Cryptomelane* group

☐ **Hollingworthite**, (Rh,Pt,Pd)AsS, cub., forms a series with **Irarsite**, *Cobaltite* group, **50**, 1068–1074 (1965)

☐ **Holmquistite**, $Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$, orth., $Mg/(Mg + Fe^{2+}) = 0.1–0.89$, dimorph. with **Clinoholmquistite**, forms a series with **Ferroholmquistite** and **Magnesioholmquistite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Holtedahlite**, $Mg_{12}(PO_3OH,CO_3)(PO_4)_5(OH,O)_6$, hex., compare **Althausite**, **Satterlyite**, **65**, 809–810 (1980), **75**, 936–937 (1990)

☐ **Holtite**, $Al_6(Al,Ta)(Si,Sb)_3BO_{15}(O,OH)_2$, orth., related to **Dumortierite**, **57**, 1556 (1972), **75**, 937 (1990)

☐ **Homilite**, $Ca_2(Fe^{2+},Mg)B_2Si_2O_{10}$, mon., *Gadolinite* group

☐ **Honessite**, $Ni_6Fe_2^{3+}(SO_4)(OH)_{16}\cdot 4H_2O$, trig., yellow to green, related to the *Hydrotalcite* group, **44**, 995–1009 (1959), *Min. Mag.* **44**, 339–343 (1981)

Hongquiite, TiO, cub., **61**, 184–195 (1976), **72**, 1039 (1987)

☐ **Hongshiite**, PtCu (?), trig., (= platinian **Copper** (?)), **69**, 411–412 (1984)

☐ **Hopeite**, $Zn_3(PO_4)_2\cdot 4H_2O$, orth., dimorph. with **Parahopeite**

Hornblende, see **Ferrohornblende**, **Magnesiohornblende**, *Amphibole* group

☐ **Hörnesite**, $Mg_3(AsO_4)_2\cdot 8H_2O$, mon., forms a series with **Erythrite**, *Vivianite* group

☐ **Horsfordite**, Cu_5Sb, cub. (?)

Hortonolite = magnesian manganoan **Fayalite**, $(Fe^{2+},Mg,Mn)_2SiO_4$

Hoshiite = nickeloan **Magnesite**, **50**, 2100 (1965), **51**, 677–684 (1966)

☐ **Hotsonite**, $Al_5(PO_4)(SO_4)(OH)_{10}$, tric., **69**, 979–983 (1984), **76**, 1734 (1991)

☐ **Howardevansite**, $NaCu^{2+}Fe_2^{3+}(VO_4)_3$, tric., black, **73**, 181–186 (1988)

☐ **Howieite**, $Na(Fe^{2+},Mn)_{10}(Fe^{3+},Al)_2Si_{12}O_{31}(OH)_{13}$, tric., compare **Taneyamalite**, **50**, 278 (1965), **59**, 86–97 (1974)

☐ **Howlite**, $Ca_2B_5SiO_9(OH)_5$, mon.

☐ **Hsianghualite**, $Ca_3Li_2Be_3(SiO_4)_3F_2$, cub., **44**, 1327 (1959), **46**, 244 (1961)

☐ **Huanghoite-(Ce)** (Huangheite-(Ce)), $BaCe(CO_3)_2F$, trig., yellow, **48**, 1179 (1963)

☐ **Huangite**, $CaAl_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **77**, 1275–1284 (1992)

☐ **Hübnerite**, $Mn^{2+}WO_4$, mon., forms a series with **Ferberite**, compare **Sanmartinite**

☐ **Huemulite**, $Na_4MgV^{5+}_{10}O_{28}\cdot 24H_2O$, tric., yellow-orange, **51**, 1–13 (1966)

☐ **Hügelite**, $Pb_2(UO_2)_3(AsO_4)_2(OH)_4\cdot 5H_2O$, mon., brown to orange, compare **Dumontite**, **47**, 418 (1962), **74**, 1403 (1989)

Hühnerkobelite = **Alluaudite** or **Ferroalluaudite**, **35**, 59–76 (1950), *Min. Mag.* **43**, 227–235 (1979)

☐ **Hulsite**, $(Fe^{2+},Mg)_2(Fe^{3+},Sn)BO_5$, mon., compare **Magnesiohulsite**, **61**, 116–122 (1976)

☐ **Humberstonite**, $K_3Na_7Mg_2(SO_4)_6(NO_3)_2\cdot 6H_2O$, trig., **55**, 1518–1533 (1970), *Can. Min.* **32**, 381–385 (1994)

☐ **Humboldtine**, $Fe^{2+}C_2O_4\ 2H_2O$, (ferrous oxalate), mon., yellow

☐ **Humite**, $(Mg,Fe^{2+})_7(SiO_4)_3(F,OH)_2$, orth., *Humite* group

☐ **Hummerite**, $KMgV^{5+}_5O_{14}\cdot 8H_2O$, tric., yellow to orange, **36**, 326–327 (1951)

☐ **Hunchunite**, Au_2Pb, cub.

☐ **Hungchaoite**, $MgB_4O_5(OH)_4\cdot 7H_2O$, tric., ps. hex., **50**, 262 (1965)

☐ **Huntite**, $CaMg_3(CO_3)_4$, trig., isostructural with **Daqingshanite-(Ce)**, **38**, 4–24 (1953)

☐ **Hureaulite**, $Mn^{2+}_5(PO_4)_2[PO_3(OH)]_2\cdot 4H_2O$, mon., compare **Sainfeldite**, **Villyaellenite**

☐ **Hurlbutite**, $CaBe_2(PO_4)_2$, mon., **37**, 931–940 (1952)

☐ **Hutchinsonite**, $(Pb,Tl)_2As_5S_9$, orth., red

☐ **Huttonite**, $ThSiO_4$, mon., dimorph. with **Thorite**, *Monazite* group, **36**, 60–69 (1951)

Hyacinth, a var. of **Zircon**

Hyalite, a var. of **Opal**

☐ **Hyalophane**, $(K,Ba)Al(Si,Al)_3O_8$, mon., intermediate member of the series **Orthoclase-Celsian**, *Feldspar* group

☐ **Hyalotekite**, $(Ba,Pb,Ca,K)_6(B,Si,Al)_2(Si,Be)_{10}O_{28}(F,Cl)$, tric., ps. mon., **67**, 1012–1020 (1982)

Hydrargillite = **Gibbsite**

Hydrated Halloysite = **Endellite**

☐ **Hydroastrophyllite**, $(H_3O,K,Ca)_3(Fe^{2+},Mn)_{5-6}Ti_2Si_8(O,OH)_{31}$, tric., *Astrophyllite* group, **60**, 736–737 (1975)

☐ **Hydrobasaluminite**, $Al_4(SO_4)(OH)_{10}\cdot 12–36H_2O$, **33**, 787 (1948)

☐ **Hydrobiotite**, 1:1 regular interstratification of **Biotite** and **Vermiculite** layers, mon., **68**, 420–425 (1983)

☐ **Hydroboracite**, $CaMgB_6O_8(OH)_6\cdot 3H_2O$, mon.

☐ **Hydrocalumite**, $Ca_2Al(OH)_6[Cl_{1-x}(OH)_x]\cdot 3H_2O$, mon., light green, **20**, 316 (1935)

☐ **Hydrocerussite**, $Pb_3(CO_3)_2(OH)_2$, trig.

☐ **Hydrochlorborite**, $Ca_2B_4O_4(OH)_7Cl\cdot 7H_2O$, mon., **62**, 147–150 (1977), **63**, 814–823 (1978)

☐ **Hydrodelhayelite**, $KCa_2AlSi_7O_{17}(OH)_2\cdot 6H_2O$, orth., **72**, 1024 (1987)

☐ **Hydrodresserite**, $BaAl_2(CO_3)_2(OH)_4\cdot 3H_2O$, tric., **64**, 654–655 (1979)

Hydrogarnet, a member of the *Garnet* group with SiO_4 partly replaced by $(OH)_4$, general formula $A_3B_2(SiO_4)_{3-x}(OH)_{4x}$, cub.

Hydrogen autunite = **Chernikovite**

☐ **Hydroglauberite**, $Na_{10}Ca_3(SO_4)_8\cdot 6H_2O$, mon., **55**, 321 (1970)

Hydrogrossular, group name for the hydrous garnet series **Hibschite-Katoite**, $Ca_3Al_2(SiO_4)_{3-x}(OH)_{4x}$, *Garnet* group

☐ **Hydrohalite**, $NaCl\cdot 2H_2O$, mon.

Hydroherderite = **Hydroxyl-herderite**

☐ **Hydrohetaerolite**, $Zn_2Mn^{3+}_4O_8 \cdot H_2O$, tet.

☐ **Hydrohonessite**, $Ni_6Fe^{3+}_2(SO_4)(OH)_{16} \cdot 7H_2O$, hex., bright yellow, **67**, 623 (1982)

☐ **Hydromagnesite**, $Mg_5(CO_3)_4(OH)_2 \cdot 4H_2O$, mon., compare **Widgiemoolthalite**

☐ **Hydrombobomkulite**, $(Ni,Cu^{2+})Al_4[(NO_3)_2,SO_4](OH)_{12} \cdot 13–14H_2O$. mon., sky-blue, **67**, 415–416 (1982)

Hydromica, see Brammallite, Hydrobiotite, Illite

Hydromolysite, $FeCl_3 \cdot 6H_2O$, **51**, 1551 (1966)

Hydromuscovite = Illite

☐ **Hydronium jarosite**, $(H_3O^{1+})_2Fe^{3+}_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **50**, 1595–1607 (1965)

☐ **Hydrophilite**, $CaCl_2$ (?), = **Antarcticite** or **Sinjarite** (?), **65**, 1070 (1980)

☐ **Hydroromarchite**, $Sn^{2+}_3O_2(OH)_2$, tet., (an artifact (?)), **57**, 1555 (1972), **58**, 552 (1973)

☐ **Hydroscarbroite**, $Al_{14}(CO_3)_3(OH)_{36} \cdot nH_2O$, tric., **45**, 910 (1960)

☐ **Hydrotalcite**, $Mg_6Al_2(CO_3)(OH)_{16} \cdot 4H_2O$, trig., dimorph. with **Manasseite**, *Hydrotalcite* group

Hydrotroilite, colloidal hydrous ferrous sulfide (?)

☐ **Hydrotungstite**, $H_2WO_4 \cdot H_2O$, mon., green, **29**, 192–210 (1944)

Hydrougrandite, $(Ca,Mg,Fe^{2+})_3(Fe^{3+},Al)_2(SiO_4)_{3-x}(OH)_{4x}$, cub., *Garnet* group, **50**, 2100 (1965)

☐ **Hydroxyapophyllite**, $KCa_4Si_8O_{20}(OH,F) \cdot 8H_2O$, tet., forms a series with **Fluorapophyllite**, compare **Natroapophyllite**, **63**, 196–202 (1978)

☐ **Hydroxycancrinite**, $Na_8Al_6Si_6O_{24}(OH)_2 \cdot 2H_2O$, hex., light blue to cols., *Cancrinite* group, **78**, 1315 (1993)

☐ **Hydroxylapatite** (Hydroxy-apatite), $Ca_5(PO_4)_3(OH)$, hex., *Apatite* group

☐ **Hydroxylbastnäsite-(Ce)**, (Ce,La)(CO_3)(OH,F), hex., forms a series with **Bastnäsite-(Ce)**, **50**, 805 (1965)

☐ **Hydroxylbastnäsite-(La)**, (La,Ce)(CO_3)(OH,F), hex., **71**, 1277 (1986)

☐ **Hydroxylbastnäsite-(Nd)**, (Nd,Ce,La)(CO_3)(OH,F), hex., **71**, 1277 (1986), **73**, 440–441 (1988)

☐ **Hydroxylellestadite**, $Ca_5[(SiO_4),(SO_4)]_3(OH,Cl,F)$, mon., ps. hex., forms a series with **Fluorellestadite**, compare **Chlorellestadite**, **Mattheddleite**, isostructural with the minerals of the *Apatite* group, **56**, 1507–1518 (1971), **67**, 90–96 (1982)

☐ **Hydroxylherderite**, $CaBe(PO_4)(OH)$, mon., forms a series with **Herderite**, compare **Bergslagite**, structurally related to the silicates of the *Gadolinite* group

☐ **Hydrozincite**, $Zn_5(CO_3)_2(OH)_6$, mon., compare **Brianyoungite**

☐ **Hypercinnabar**, HgS, hex., black, trimorph. with **Cinnabar** and with **Metacinnabar**, **63**, 1143–1152 (1978)

Hypersthene, an intermediate member of the series **Enstatite-Ferrosilite**, orth., *Pyroxene* group

I

☐ **Ianthinite**, $UO_2 \cdot 5UO_3 \cdot 10H_2O$, orth., violet, **44**, 1103 (1959)

☐ **Ice**, H_2O, hex.

☐ **Idaite**, Cu_3FeS_4 (?), hex., compare **Nukundamite**, **43**, 1219 (1958), **60**, 1013–1018 (1975)

Iddingsite, a mixt. of silicates formed by the alteration of **Olivine**, **46**, 92–111 (1961)

Idocrase = **Vesuvianite**

☐ **Idrialite**, $C_{22}H_{14}$, dimethylbenzphenanthrene, orth., **55**, 1073 (1970), **61**, 1055 (1976)

☐ **Iimoriite-(Y)**, $Y_2(SiO_4)(CO_3)$, tric., **58**, 140 (1973), **69**, 196–199 (1984)

☐ **Ikaite**, $CaCO_3 \cdot 6H_2O$, mon., **49**, 439 (1964)

☐ **Ikunolite**, $Bi_4(S,Se)_3$, trig., compare **Laitakarite**, **45**, 477 (1960)

Ilbaite = **Allophane**

☐ **Ilesite**, $(Mn^{2+},Zn,Fe^{2+})SO_4 \cdot 4H_2O$, mon., green, *Rozenite* group

☐ **Ilimaussite-(Ce)**, $Ba_2Na_4CeFe^{3+}Nb_2Si_8O_{28} \cdot 5H_2O$, hex., brownish-yellow, **54**, 992 (1969)

Illite, mica-clay minerals of general formula $(K,H_3O)(Al,Mg,Fe)_2$-$(Si,Al)_4O_{10}[(OH)_2,H_2O]$, mon., compare Brammallite

☐ **Ilmajokite**, $(Na,Ce,Ba)_2TiSi_3O_5(OH)_{10} \cdot nH_2O$, mon., bright yellow, **58**, 139 (1973)

☐ **Ilmenite**, $Fe^{2+}TiO_3$, trig., forms two series, with **Geikielite**, and with **Pyrophanite**, *Ilmenite* group

☐ **Ilmenorutile**, $(Ti,Nb,Fe^{3+})_3O_6$, tet., forms a series with **Strüverite**

☐ **Ilsemannite**, $Mo_3O_8 \cdot nH_2O$ (?), amor., blue-black

☐ **Ilvaite**, $CaFe^{2+}_2Fe^{3+}Si_2O_7O(OH)$, orth. and mon.

☐ **Imandrite**, $Na_6Ca_{1.5}Fe^{3+}Si_6O_{18}$, orth., honey-yellow, *Lovozerite* group, **65**, 810 (1980)

☐ **Imgreite**, NiTe (?), hex., pale rose, *Nickeline* group, **49**, 1151 (1964)

☐ **Imhofite**, $Tl_6CuAs_{16}S_{40}$, mon., copper-red, **51**, 531 (1966), **54**, 1498 (1969)

☐ **Imiterite**, Ag_2HgS_2, mon., **71**, 1277–1278 (1986)

☐ **Imogolite**, $Al_2SiO_3(OH)_4$, **73**, 198 (1988)

☐ **Inaglyite**, $PbCu_3(Ir,Pt)_8S_{16}$, hex., compare **Konderite**, **71**, 228 (1986)

☐ **Incaite**, $(Pb,Ag)_4Sn_4FeSb_2S_{15}$, mon., compare **Cylindrite**, **Franckeite**, **Potosiite**, **60**, 486 (1975)

☐ **Inderborite**, $CaMg[B_3O_3(OH)_5]_2{\cdot}6H_2O$, mon.

☐ **Inderite**, $MgB_3O_3(OH)_5{\cdot}5H_2O$, mon., dimorph. with **Kurnakovite**

☐ **Indialite**, $Mg_2Al_4Si_5O_{18}$, hex., dimorph. with **Cordierite**, **40**, 787 (1955)

☐ **Indigirite**, $Mg_2Al_2(CO_3)_4(OH)_2{\cdot}15H_2O$, mon. (?), **57**, 326 (1972)

☐ **Indite**, $Fe^{2+}In_2S_4$, cub., *Linnaeite* group, **49**, 439 (1964)

☐ **Indium**, In, tet., **52**, 299 (1967)

☐ **Inesite**, $Ca_2Mn^{2+}_7Si_{10}O_{28}(OH)_2{\cdot}5H_2O$, tric.

☐ **Ingersonite**, $Ca_3Mn^{2+}Sb^{5+}_4O_{14}$, hex., yellow, **73**, 405–412 (1988)

☐ **Ingodite**, Bi(S,Te), **76**, 257–265 (1991)

☐ **Innelite**, $(Ba,K)_4(Na,Ca)_3Ti_3(Si_2O_7)_2(SO_4)_2O_4$, tric., yellow-brown, **47**, 805 (1962)

☐ **Insizwaite**, $Pt(Bi,Sb)_2$, cub., *Pyrite* group, **58**, 805 (1973)

☐ **Inyoite**, $Ca_2B_6O_6(OH)_{10}{\cdot}8H_2O$, mon.

☐ **Iodargyrite**, AgI, hex., yellow

Iodobromite, Ag(Br,Cl,I) = iodian **Bromargyrite**

Iodyrite = **Iodargyrite**

Iolite = **Cordierite**

☐ **Iowaite**, $Mg_6Fe^{3+}_2(OH)_{16}Cl_2 \cdot 4H_2O$, trig., *Hydrotalcite* group, **52**, 1261–1271 (1967), *Min. Mag.* **58**, 79–85 (1994)

Iozite = **Wüstite**

☐ **Iquiqueite**, $K_3Na_4Mg(Cr^{6+}O_4)B_{24}O_{39}(OH) \cdot 12H_2O$, hex., yellow, **71**, 830–836 (1986)

☐ **Iranite**, $Pb_{10}Cu(CrO_4)_6(SiO_4)_2(F,OH)_2$, tric., yellow, forms a series with **Hemihedrite**, **48**, 1417 (1963), **61**, 186 (1976)

☐ **Iraqite-(La)**, $K(La,Ce,Th)_2(Ca,Na)_4(Si,Al)_{16}O_{40}$, tet., greenish-yellow, compare **Ekanite**, **Steacyite**, **61**, 1054 (1976)

☐ **Irarsite**, (Ir,Ru,Rh,Pt)AsS, cub., forms a series with **Hollingworthite**, *Cobaltite* group, **52**, 1580 (1967), **61**, 186 (1976)

☐ **Irhtemite**, $Ca_4MgH_2(AsO_4)_4 \cdot 4H_2O$, mon., **59**, 209 (1974)

☐ **Iridarsenite**, $(Ir,Ru)As_2$, mon., **61**, 177 (1976)

Iridisite-beta, $(Ir,Cu)_3S_8$, ps. cub., **74**, 1215 (1989)

☐ **Iridium**, (Ir,Os,Ru) with Ir dominant, cub., *Can. Min.* **29**, 231–237 (1991)

Iridosmine = **Osmium**, *Can. Min.* **29**, 231–237 (1991)

Iridosmium = **Osmium**

☐ **Iriginite**, $(UO_2)(Mo^{6+}_2O_7) \cdot 3H_2O$, orth., canary-yellow, **45**, 257 (1960), **79**, 574 (1994)

☐ **Iron**, Fe, terrestrial, body-centered cub., alpha-iron

Iron cordierite = **Sekaninaite**

- **Irtyshite**, $Na_2(Ta,Nb)_4O_{11}$, hex.

- **Ishikawaite**, $(U,Fe,Y,Ca)(Nb,Ta)O_4$ (?), orth.

Isoclasite, $Ca_2(PO_4)(OH)\cdot 2H_2O$, mon., (a dubious mineral)

- **Isocubanite**, $CuFe_2S_3$, cub., dimorph. with **Cubanite**, **74**, 503 (1989)

- **Isoferroplatinum**, Pt_3Fe, cub., **61**, 338–339 (1976)

- **Isokite**, $CaMn(PO_4)F$, mon., compare **Panasqueiraite**, **40**, 776 (1955), **41**, 167 (1956)

- **Isomertieite**, $Pd_{11}Sb_2As_2$, cub., dimorph. with **Mertieite-I**, **59**, 1330 (1974), **68**, 851 (1983)

Isoplatinocopper = platinian **Copper** or **Hongshiite**, **63**, 426 (1978)

- **Itoite**, $Pb_3Ge^{IV}(SO_4)_2O_2(OH)_2$, orth., **45**, 1313 (1960)

- **Iwakiite**, $Mn^{2+}(Fe^{3+},Mn^{3+})_2O_4$, tet., dimorph. with **Jacobsite**, compare **Hausmannite**, **Hetaerolite**, **65**, 406 (1980)

- **Ixiolite**, $(Ta,Nb,Sn,Fe,Mn)_3O_7$, mon., compare **Ashanite**, **48**, 961–979 (1963)

- **Izoklakeite**, $Pb_{24}(Cu,Fe)_{12}(Sb,Bi)_{28}S_{75}$, orth., compare **Kobellite**, **72**, 222–223, 821–831 (1987)

J

☐ **Jacobsite**, $(Mn^{2+},Fe^{2+},Mg)(Fe^{3+},Mn^{3+})_2O_4$, cub., forms a series with **Magnetite**, dimorph. with **Iwakiite**, *Spinel* group

Jade = gem var. of **Jadeite** or Nephrite

☐ **Jadeite**, $Na(Al,Fe^{3+})Si_2O_6$, mon., *Pyroxene* group

☐ **Jaffeite**, $Ca_6Si_2O_7(OH)_6$, hex., **74**, 1203–1206 (1989)

☐ **Jagoite**, $Pb_3Fe^{3+}Si_4O_{12}(Cl,OH)$, hex., yellow-green, **43**, 387 (1958), **66**, 852–853 (1981)

☐ **Jagowerite**, $BaAl_2(PO_4)_2(OH)_2$, tric., light green, **59**, 291–295 (1974), **61**, 175 (1976)

☐ **Jahnsite-(CaMnFe)**, $CaMn^{2+}Fe_2^{3+}Fe_2^{3+}(PO_4)_4(OH)_2\cdot 8H_2O$, mon., *Whiteite* group, **59**, 48–59, 964–973 (1974)

☐ **Jahnsite-(CaMnMg)**, $CaMn(Mg,Fe^{2+})_2Fe_2^{3+}(PO_4)_4(OH)_2\cdot 8H_2O$, mon., yellow-orange, *Whiteite* group, **59**, 48–59, 964–973 (1974)

☐ **Jahnsite-(CaMnMn)**, $CaMn^{2+}Mn_2^{2+}Fe_2^{3+}(PO_4)_4(OH)_2\cdot 8H_2O$, mon, brownish-yellow, *Whiteite* group, **75**, 404–409 (1990)

☐ **Jalpaite**, Ag_3CuS_2, tet., **53**, 1530–1542, 1778 (1968)

☐ **Jamborite**, $(Ni^{2+},Ni^{3+},Fe)(OH)_2(OH,S,H_2O)$ (?), hex., green, **58**, 835–839 (1973)

☐ **Jamesite**, $Pb_2Zn_2Fe_5^{3+}(AsO_4)_5O_4$, tric., reddish-brown, **66**, 1275 (1981)

☐ **Jamesonite**, $Pb_4FeSb_6S_{14}$, mon., dimorph. with **Parajamesonite**, forms a series with **Benavidesite**

☐ **Janggunite**, $Mn_{5-x}^{4+}(Mn^{2+},Fe^{3+})_{1+x}O_8(OH)_6$, x = 0.2, orth., black, **63**, 794 (1978)

☐ **Janhaugite**, $Na_3Mn_3^{2+}Ti_2Si_4O_{15}(OH,F,O)_3$, mon., reddish-brown, **68**, 1216–1219 (1983)

☐ **Jarlite**, $NaSr_3Al_3(F,OH)_{16}$, mon., compare **Calcjarlite**

☐ **Jarosewichite**, $Mn_3^{2+}Mn^{3+}(AsO_4)(OH)_6$, orth., dark red, compare **Chlorophoenicite** and **Magnesium-chlorophoenicite**, **67**, 1043–1047 (1982)

☐ **Jarosite**, $K_2Fe_6^{3+}(SO_4)_4(OH)_{12}$, trig., *Alunite* group

☐ **Jaskolskiite**, $Pb_{2+x}Cu_x(Sb,Bi)_{2-x}S_5$, x = 0.2, orth., **70**, 572 (1985)

☐ **Jasmundite**, $Ca_{11}(SiO_4)_4O_2S$, tet., dark brown, **69**, 566–567 (1984)

Jasper, massive **Quartz** colored red by iron oxide

☐ **Jeanbandyite**, $(Fe^{3+},Mn^{2+})Sn^{4+}(OH)_6$, tet., ps. cub., brown-orange, *Stottite* group, *Mineral. Rec.* **13**, 235–239 (1982), **68**, 471–472 (1983)

Jeffersonite, a var. of dark mon. *Pyroxene*, usually manganoan and zincian **Augite** or **Diopside**, **51**, 1406–1412 (1966), **73**, 1131 (1988)

☐ **Jeffreyite**, $(Ca,Na)_2(Be,Al)Si_2(O,OH)_7$, orth., ps. tet., structurally related to the *Melilite* group, dimorph. with **Gugiaite**, **70**, 872 (1985)

☐ **Jennite**, $Ca_9H_2Si_6O_{18}(OH)_8{\cdot}6H_2O$, tric., **51**, 56–73 (1966), **62**, 365–368 (1977)

☐ **Jeppeite**, $(K,Ba)_2(Ti,Fe^{3+})_6O_{13}$, mon., black, **70**, 872 (1985)

☐ **Jeremejevite**, $Al_6B_5O_{15}(F,OH)_3$, hex., **67**, 1081 (1982)

☐ **Jeromite**, $As(S,Se)_2$ (?), amor., **13**, 227 (1928)

☐ **Jerrygibbsite**, $Mn_5^{2+}(SiO_4)_4(OH)_2$, orth., violet-pink, dimorph. with **Sonolite**, *Humite* group, **69**, 546–552 (1984)

☐ **Jervisite**, $(Na,Ca,Fe^{2+})(Sc,Mg,Fe^{2+})Si_2O_6$, mon., light green, *Pyroxene* group, **67**, 599–603 (1982)

☐ **Jianshuiite**, $(Mg,Mn^{2+})Mn_3^{4+}O_7{\cdot}3H_2O$, tric., brown to brownish black, compare **Chalcophanite**, **79**, 185 (1994)

☐ **Jimboite**, $Mn_3^{2+}B_2O_6$, orth., compare **Kotoite**, **48**, 1416 (1963)

☐ **Jimthompsonite**, $(Mg,Fe^{2+})_5Si_6O_{16}(OH)_2$, orth., dimorph. with **Clinojimthompsonite**, **63**, 1000–1009, 1053–1073 (1978)

☐ **Jinshajiangite**, $(Ba,Ca)_4(Na,K)_5(Fe^{2+},Mn^{2+})_{15}(Ti,Fe^{3+},Nb,Zr)_8Si_{15}O_{64}(F,OH)_6$, mon., blackish-red to golden-red, compare **Perraultite**, **69**, 567 (1984)

☐ **Jixianite**, $Pb(W,Fe^{3+})_2(O,OH)_7$, cub., red to brownish-red, related to *Pyrochlore* group and to *Stibiconite* group, **64**, 1330 (1979)

Joaquinite, see *Joaquinite* group

☐ **Joaquinite-(Ce)**, $Ba_2NaCe_2Fe^{2+}(Ti,Nb)_2Si_8O_{26}(OH,F)\cdot H_2O$, mon., dimorph. with **Orthojoaquinite-(Ce)**, *Joaquinite* group, **52**, 1762–1769 (1967), **67**, 809–816 (1982)

☐ **Joesmithite**, $PbCa_2(Mg,Fe^{2+},Fe^{3+})_5Si_6Be_2O_{22}(OH)_2$, mon., black, *Amphibole* group, **54**, 577 (1969), **73**, 543–544 (1988)

☐ **Johachidolite**, $CaAlB_3O_7$, orth., **33**, 98 (1948), **62**, 327–329 (1977)

☐ **Johannite**, $Cu(UO_2)_2(SO_4)_2(OH)_2\cdot 8H_2O$, tric., green, **68**, 851 (1983)

☐ **Johannsenite**, $CaMn^{2+}Si_2O_6$, mon., forms two series with **Diopside**, and with **Hedenbergite**, *Pyroxene* group, **23**, 575–582 (1938)

☐ **Johillerite**, $Na(Mg,Zn)_3Cu^{2+}(AsO_4)_3$, mon., violet, compare **O'danielite**, **67**, 1075 (1982)

☐ **Johnbaumite**, $Ca_5(AsO_4)_3(OH)$, hex., *Apatite* group, **65**, 1143–1145 (1980)

☐ **Johninnesite**, $Na_2Mg_4Mn^{2+}_{12}As^{5+}_2Si_{12}O_{43}(OH)_6$, tric., light yellow-brown, **73**, 428 (1988)

☐ **Johnsomervilleite**, $Na_2Ca(Mg,Fe^{2+},Mn)_7(PO_4)_6$, trig., brown, compare **Fillowite** and **Chladniite**, **66**, 437 (1981)

☐ **Johnwalkite**, $K(Mn^{2+},Fe^{3+},Fe^{2+})_2(Nb,Ta)(PO_4)_2O_2(H_2O,OH)_2$, orth., dark brown, compare **Olmsteadite**, **72**, 223 (1987)

☐ **Jokokuite**, $Mn^{2+}SO_4\cdot 5H_2O$, tric., pink, *Chalcanthite* group, **64**, 655 (1979)

☐ **Joliotite**, $(UO_2)(CO_3)\cdot nH_2O$, (n = 2?), orth., yellow, *Min. Abs.* **28**, 208 (1977)

☐ **Jolliffeite**, NiAsSe, cub., compare **Gersdorffite**, *Cobaltite* group, *Can. Min.* **29**, 411–418 (1991)

☐ **Jonesite**, $Ba_3(K,Na)_2Ti_4Al_2Si_{10}O_{36}\cdot 6H_2O$, orth., *Mineral. Rec.* **8**, 453–456 (1977)

☐ **Jordanite**, $Pb_{14}(As,Sb)_6S_{23}$, mon., forms a series with **Geocronite**, *Min. Abs.* **26**, 83 (1975)

☐ **Jordisite**, MoS_2, amor., trimorph. with **Molybdenite-(2H)** and **Molybdenite-(3R)**

☐ **Joseite-A**, Bi_4TeS_2, trig., dimorph. with Protojoseite, **34**, 365–366 (1949)

☐ **Joseite-B**, Bi_4Te_2S, trig., **34**, 367 (1949)

Josephinite = Nickel-iron, see **Awaruite**, **Kamacite**, **Taenite**, **Tetrataenite**

☐ **Jouravskite**, $Ca_6Mn_2^{4+}(SO_4,CO_3)_4(OH)_{12}\cdot 26H_2O$, hex., bright yellow, *Ettringite* group, **50**, 2102 (1965)

☐ **Juanite**, $Ca_{10}Mg_4Al_2Si_{11}O_{39}\cdot 4H_2O$ (?), orth. (?), **17**, 343 (1932)

☐ **Julgoldite-(Fe^{2+})**, $Ca_2Fe^{2+}(Fe^{3+},Al)_2(SiO_4)(Si_2O_7)(OH)_2\cdot H_2O$, mon., greenish-black, forms two series, with **Pumpellyite-(Fe^{2+})**, and with **Pumpellyite-(Mg)**, *Pumpellyite* group, **56**, 2157 (1971)

Julienite, $Na_2Co(SCN)_4\cdot 8H_2O$, (a thiocyanate), tet., blue, (an artifact?)

☐ **Jungite**, $Ca_2Zn_4Fe_8^{3+}(PO_4)_9(OH)_9\cdot 16H_2O$, orth., yellow to greenish-yellow, **65**, 1067 (1980)

☐ **Junitoite**, $CaZn_2Si_2O_7\cdot H_2O$, orth., hemimorph., **61**, 1255–1258 (1976)

☐ **Junoite**, $Pb_3Cu_2Bi_8(S,Se)_{16}$, mon., **60**, 548–558, 737 (1975)

☐ **Jurbanite**, $Al(SO_4)(OH)\cdot 5H_2O$, mon., dimorph. with **Rostite**, **61**, 1–4 (1976)

K

☐ **Kaatialaite**, $Fe^{3+}As^{5+}_3O_9 \cdot 6–8H_2O$, mon., gray to yellow, **69**, 383–387 (1984)

☐ **Kadyrelite**, $Hg^{1+}_4(Br,Cl)_2O$, cub., orange, forms a series with **Eglestonite**, **74**, 503 (1989)

Kaemmererite, see Kämmererite

☐ **Kaersutite**, $NaCa_2(Mg,Fe^{2+})_4Ti(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Ferrokaersutite**, *Amphibole* group, **63**, 1023–1052 (1978)

Kafehydrocyanite, $K_4Fe^{2+}(CN)_6 \cdot 3H_2O$, (potassium ferrocyanide), lemon-yellow, (an artifact (?)), **59**, 209 (1974)

☐ **Kahlerite**, $Fe^{2+}(UO_2)_2(AsO_4)_2 \cdot 10–12H_2O$, tet., lemon-yellow, *Autunite* group, **39**, 1038 (1954)

☐ **Kainite**, $MgSO_4 \cdot KCl \cdot 3H_2O$, mon.

☐ **Kainosite-(Y)**, $Ca_2(Y,Ce)_2Si_4O_{12}(CO_3) \cdot H_2O$, orth.

☐ **Kalborsite**, $K_6Al_4Si_6BO_{20}(OH)_4Cl$, tet., **66**, 879 (1981)

☐ **Kaliborite**, $KHMg_2B_{12}O_{16}(OH)_{10} \cdot 4H_2O$, mon.

☐ **Kalicinite**, $KHCO_3$, mon.

☐ **Kalininite**, $ZnCr_2S_4$, cub., black, *Linnaeite* group, **72**, 223 (1987)

☐ **Kalinite**, $KAl(SO_4)_2 \cdot 11H_2O$, mon. (?)

☐ **Kaliophilite**, $KAlSiO_4$, hex., polymorph. with **Kalsilite**, **Panunzite**, **Trikalsilite**

☐ **Kalipyrochlore**, $(H_2O)(Nb,Ti)_2(O,OH)_6 \cdot H_2O$ or $Nb_2(O,OH)_6 \cdot pH_2O$ (where $p \leq 1.75$), cub., *Pyrochlore* group, **63**, 528–530 (1978), *Can. Min.* **32**, 415–420 (1994)

☐ **Kalistrontite**, $K_2Sr(SO_4)_2$, trig., compare **Palmierite**, **48**, 708 (1963)

☐ **Kalsilite**, $KAlSiO_4$, hex., polymorph. with **Kaliophilite**, **Panunzite**, and **Trikalsilite**, **28**, 62 (1943)

Kaluginite, $(Mn,Ca)MgFe^{3+}(PO_4)_2(OH)\cdot 4H_2O$, orth., yellowish green to greenish yellow, **78**, 450 (1993); not approved by IMA

☐ **Kamacite**, (Fe,Ni), alpha-Nickel-iron, body-centered cub., Ni usually 4–7.5%, compare **Taenite**, **Tetrataenite**

☐ **Kamaishilite**, $Ca_2Al_2SiO_6(OH)_2$, tet., dimorph. with **Bicchulite**, **67**, 855 (1982)

☐ **Kambaldaite**, $NaNi_4(CO_3)_3(OH)_3\cdot 3H_2O$, hex., emerald-green, **70**, 419–422 (1985)

☐ **Kamchatkite**, $KCu_3^{2+}(SO_4)_2OCl$, orth., greenish- to yellowish-brown, **77**, 212 (1992)

☐ **Kamiokite**, $Fe_2^{2+}Mo_3^{4+}O_8$, hex., **68**, 1038–1039 (1983), **73**, 191 (1988)

☐ **Kamitugaite**, $PbAl(UO_2)_5[(P,As)O_4]_2(OH)_9\cdot 9.5H_2O$, tric., yellow, **70**, 437 (1985)

Kämmererite = chromian **Clinochlore**, mon., lavender

☐ **Kamotoite-(Y)**, $Y_2U_4^{6+}(CO_3)_3O_{12}\cdot 14.5H_2O$, mon., bright yellow, **73**, 191 (1988)

☐ **Kamphaugite-(Y)**, $Ca(Y,REE)(CO_3)_2(OH)\cdot H_2O$, tet., **79**, 387–388 (1994)

☐ **Kanemite**, $NaHSi_2O_3(OH)_2\cdot 2H_2O$, orth., **59**, 210 (1974)

☐ **Kankite**, $Fe^{3+}AsO_4\cdot 3.5H_2O$, mon., yellow-green, **62**, 594 (1977)

☐ **Kanoite**, $(Mn^{2+},Mg)_2Si_2O_6$, mon., pinkish-brown, dimorph. with **Donpeacorite**, compare **Clinoenstatite**, **Clinoferrosilite**, *Pyroxene* group, **63**, 595 (1978)

☐ **Kanonaite**, $(Mn^{3+},Al)AlSiO_5$, orth., greenish-black, forms a series with **Andalusite**, **64**, 655 (1979)

☐ **Kaolinite**, $Al_2Si_2O_5(OH)_4$, tric., polymorph. with **Dickite**, **Halloysite**, and **Nacrite**, *Kaolinite-Serpentine* group

☐ **Karasugite**, $SrCaAl[F,(OH)]_7$, mon., *N. Jb. Min. Mon.* 209–216 (Eng.) (1994)

☐ **Karelianite**, V_2O_3, trig., *Hematite* group, **48**, 33–41 (1963)

☐ **Karibibite**, $Fe^{3+}_2As^{3+}_4(O,OH)_9$, orth., brownish-yellow, **59**, 382 (1974)

☐ **Karlite**, $(Mg,Al)_6(BO_3)_3(OH,Cl)_4$, orth., **66**, 872–877 (1981)

☐ **Karnasurtite-(Ce)**, $(Ce,La,Th)(Ti,Nb)(Al,Fe^{3+})(Si,P)_2O_7(OH)_4 \cdot 3H_2O$ (?), hex. (?), **45**, 1133 (1960)

☐ **Karpatite** (Coronene), $C_{24}H_{12}$, mon., **42**, 120 (1957), **54**, 329 (1969)

☐ **Karpinskite**, $(Mg,Ni)_2Si_2O_5(OH)_2$ (?), mon. (?), green, **42**, 584 (1957)

☐ **Kashinite**, $(Ir,Rh)_2S_3$, orth., compare **Bowieite**, **72**, 223 (1987)

Kasoite, a var. of **Celsian**

☐ **Kasolite**, $Pb(UO_2)SiO_4 \cdot H_2O$, mon., yellow to brown, **7**, 128 (1922)

☐ **Kassite**, $CaTi_2O_4(OH)_2$, orth., pale yellow, **52**, 559–560 (1967), **76**, 283–287 (1991)

Katayamalite = **Baratovite**

☐ **Katoite**, $Ca_3Al_2(SiO_4)_{3-x}(OH)_{4x}$, x = 1.5–3, cub., forms a series with **Grossular** and **Hibschite**, *Garnet* group, **70**, 873 (1985)

Katophorite, see **Ferrikatophorite**, **Aluminokatophorite**, **Magnesio-alumino-katophorite**

☐ **Katoptrite**, $(Mn^{2+},Mg)_{13}(Al,Fe^{3+})_4Sb^{5+}_2Si_2O_{28}$, mon., **51**, 1484 (1966), **62**, 396 (1977)

☐ **Kawazulite**, Bi_2Te_2Se, trig., *Tetradymite* group, **57**, 1312 (1972)

☐ **Kazakhstanite**, $Fe^{3+}_5V^{4+}_3V^{5+}_{12}O_{39}(OH)_9 \cdot 9H_2O$, mon., black, **76**, 667 (1991)

☐ **Kazakovite**, $Na_6(Mn^{2+},H_2)TiSi_6O_{18}$, trig., pale yellow, *Lovozerite* group, **60**, 161–162 (1975)

Keatite, a name given to a synthetic tet. polymorph of SiO_2

☐ **Keckite**, $Ca(Mn^{2+},Zn)_2Fe^{3+}_3(PO_4)_4(OH)_3 \cdot 2H_2O$, mon., brown, *Whiteite* group, **64**, 1330–1331 (1979)

☐ **Kegelite**, $Pb_8Al_4Si_8(SO_4)_2(CO_3)_4(OH)_8O_{20}$, ps. hex., **62**, 175–176 (1977), **75**, 702–704 (1990), *Min. Mag.* **55**, 127–134 (1991)

Kehoite, a mixt. of several phases, **78**, 238 (1993)

Keilhauite = yttrian **Titanite**

☐ **Keithconnite**, $Pd_{3-x}Te$, (x = 0.14–0.43) trig., **66**, 1275 (1981)

☐ **Keiviite-(Y)**, $(Y,Yb)_2Si_2O_7$, mon., forms a series with **Keiviite-(Yb)**, compare **Thortveitite**, **73**, 191–192 (1988)

☐ **Keiviite-(Yb)**, $(Yb,Y)_2Si_2O_7$, mon., forms a series with **Keiviite-(Y)**, compare **Thortveitite**, **69**, 1191 (1984)

☐ **Keldyshite**, $Na_{2-x}H_xZrSi_2O_7 \cdot nH_2O$, tric., compare **Parakeldyshite**, **47**, 1216 (1962)

☐ **Kellyite**, $(Mn^{2+},Mg,Al)_3(Si,Al)_2O_5(OH)_4$, hex., yellow, *Kaolinite-Serpentine* group, **59**, 1153–1156 (1974)

☐ **Kelyanite**, $Hg_{10}Sb_3(Cl,Br)_9O_{28}$, mon., reddish-brown, **68**, 1248–1249 (1983)

☐ **Kemmlitzite**, $(Sr,Ce)Al_3(AsO_4)(SO_4)(OH)_6$, trig., *Beudantite* group, **55**, 320 (1970)

☐ **Kempite**, $Mn^{2+}_2Cl(OH)_3$, orth., emerald-green

Kennedyite = **Armalcolite** or **Pseudobrookite**, **46**, 766 (1961), **73**, 1377–1383 (1988)

☐ **Kentrolite**, $Pb_2Mn^{3+}_2Si_2O_9$, orth., forms a series with **Melanotekite**, **52**, 1085–1093 (1967)

☐ **Kenyaite**, $Na_2Si_{22}O_{41}(OH)_8 \cdot 6H_2O$, mon., **53**, 510, 2061 (1968)

☐ **Kermesite**, Sb_2S_2O, tric., ps. mon., cherry-red

☐ **Kernite**, $Na_2B_4O_6(OH)_2 \cdot 3H_2O$, mon., **12**, 24 (1927)

Kerolite, a var. of **Talc** with randomly stacked structure, forms a series with Nickel-kerolite, **63**, 795–796 (1978)

Kertschenite = oxidation product of **Vivianite**

☐ **Kesterite**, $Cu_2(Zn,Fe)SnS_4$, tet., compare **Ferrokesterite**, **43**, 1222 (1958), **44**, 1329 (1959)

☐ **Kettnerite**, $CaBi(CO_3)OF$, tet., yellow, **42**, 121 (1957), **43**, 385 (1958)

☐ **Keyite**, $(Cu,Zn,Cd)_3(AsO_4)_2$, mon., deep sky-blue, **62**, 1259 (1977)

☐ **Keystoneite**, $(Ni,Mg,Fe^{2+},Mn^{2+})_3Te^{4+}_3O_9{\cdot}5H_2O$, hex., golden-yellow

K-feldspar = Potassium feldspar = **Microcline** or **Orthoclase**

☐ **Khademite**, $Al(SO_4)F{\cdot}5H_2O$, orth., compare **Rostite**, **66**, 1102 (1981), **73**, 1499 (1988), **74**, 951 (1989)

☐ **Khamrabaevite**, (Ti,V,Fe)C, cub., **70**, 1329 (1985)

☐ **Khanneshite**, $(Na,Ca)_3(Ba,Sr,Ce,Ca)_3(CO_3)_5$, hex., compare **Burbankite**, **Remondite-(Ce)**, **68**, 1249 (1983)

☐ **Kharaelakhite**, $(Pt,Cu,Pb,Fe,Ni)_4S_8$, orth. (?), **74**, 1215–1216 (1989)

☐ **Khatyrkite**, $(Cu,Zn)Al_2$, tet., **71**, 1278 (1986)

☐ **Khibinskite**, $K_2ZrSi_2O_7$, mon., ps. trig., **59**, 1140 (1974), **60**, 340 (1975)

☐ **Khinite**, $PbCu^{2+}_3Te^{6+}O_4(OH)_6$, orth., dark green, dimorph. with **Parakhinite**, **63**, 1016–1019 (1978)

☐ **Khristovite-(Ce)**, $(Ca,REE)REE(Mg,Fe^{2+})AlMn^{2+}Si_3O_{11}(OH)(F,O)$, mon., brown or dark brown, *Epidote* group

☐ **Kiddcreekite**, Cu_6SnWS_8, cub., compare **Hemusite**, **70**, 437 (1985)

☐ **Kidwellite**, $NaFe^{3+}_9(PO_4)_6(OH)_{10}{\cdot}5H_2O$, mon., pale green to greenish-yellow, **64**, 242–243 (1979)

☐ **Kieftite**, $CoSb_3$, cub., compare **Skutterudite** and **Nickel-skutterudite**, *Can. Min.* **32**, 179–183 (1994)

☐ **Kieserite**, $MgSO_4 \cdot H_2O$, mon., *Kieserite* group

☐ **Kilchoanite**, $Ca_3Si_2O_7$, orth., dimorph. with **Rankinite**, **46**, 1203 (1961)

☐ **Killalaite**, $2Ca_3Si_2O_7 \cdot H_2O$, mon., **59**, 1331 (1974)

☐ **Kimrobinsonite**, $(Ta,Nb)(OH)_3(O,CO_3)$, cub., **72**, 1024 (1987)

☐ **Kimuraite-(Y)**, $CaY_2(CO_3)_4 \cdot 6H_2O$, orth., purplish- to pinkish-white, **71**, 1028–1033 (1986)

☐ **Kimzeyite**, $Ca_3(Zr,Ti)_2(Si,Al,Fe^{3+})_3O_{12}$, cub., *Garnet* group, **46**, 533–548 (1961)

☐ **Kingite**, $Al_3(PO_4)_2(OH,F)_3 \cdot 9H_2O$, tric., **42**, 580 (1957)

☐ **Kingsmountite**, $(Ca,Mn^{2+})_3(Fe^{2+},Mn^{2+})Al_3(PO_4)_6(OH)_4 \cdot 12H_2O$, mon., *Montgomeryite* group, **66**, 1275–1276 (1981)

☐ **Kinichilite**, $(Fe^{2+},Mg,Zn)_2(Te^{4+}O_3)_3(Na_xH_{2-x})\cdot 3H_2O$, hex., dark brown, compare **Zemannite**, **67**, 623 (1982)

☐ **Kinoite**, $Ca_2Cu_2^{2+}Si_3O_8(OH)_4$, mon., azure blue, **55**, 709–715 (1970)

☐ **Kinoshitalite**, $(Ba,K)(Mg,Mn,Al)_3Si_2Al_2O_{10}(OH)_2$, mon., *Mica* group, compare **Anandite**, **60**, 486–487 (1975)

☐ **Kipushite**, $(Cu^{2+},Zn)_5Zn(PO_4)_2(OH)_6 \cdot H_2O$, mon., emerald-green, compare **Philipsburgite**, **71**, 228–229 (1986)

☐ **Kirkiite**, $Pb_{10}Bi_3As_3S_{19}$, orth. or mon., **71**, 1278–1279 (1986)

☐ **Kirschsteinite**, $CaFe^{2+}SiO_4$, orth., forms a series with **Monticellite**, compare **Glaucochroite**, **43**, 790 (1958)

Kitaibelite, $Ag_{10}PbBi_{30}S_{51}$, **72**, 1027 (1987)

☐ **Kitkaite**, NiTeSe, trig., pale yellow, *Melonite* group, **50**, 581–586 (1965)

☐ **Kittatinnyite**, $Ca_4Mn_2^{2+}Mn_4^{3+}Si_4O_{16}(OH)_8 \cdot 18H_2O$, hex., bright yellow, compare **Walkilldellite**, **68**, 1029–1032 (1983)

Kivuite, $(Th,Ca,Pb)H_2(UO_2)_4(PO_4)_2(OH)_8 \cdot 7H_2O$ (?), orth. (?), compare **Phosphuranylite**, **44**, 1326 (1959)

☐ **Kladnoite**, $C_6H_4(CO)_2NH$, (phthalimide), mon., **31**, 605 (1946)

☐ **Klebelsbergite**, $Sb_4^{3+}O_4(OH)_2(SO_4)$, orth., yellow, **65**, 499–505 (1980)

Kleberite, $FeTi_6O_{13}\cdot 4H_2O$ (?), hex., dark brown to black, **64**, 655 (1979)

☐ **Kleemanite**, $ZnAl_2(PO_4)_2(OH)_2\cdot 3H_2O$, mon., **64**, 1331 (1979)

☐ **Kleinite**, $Hg_2N(Cl,SO_4)\cdot nH_2O$, hex., yellow to orange

☐ **Klockmannite**, CuSe, hex., compare **Covellite**

☐ **Klyuchevskite**, $K_3Cu_3^{2+}(Fe^{3+},Al)O_2(SO_4)_4$, mon., olive-green, **78**, 454 (1993)

Knebelite = manganoan **Fayalite**, $(Fe^{2+},Mg,Mn)_2SiO_4$

Knipovichite, a chromian var. of **Alumohydrocalcite**, **61**, 341 (1976)

☐ **Knorringite**, $Mg_3Cr_2(SiO_4)_3$, cub., forms a series with **Pyrope**, *Garnet* group, **53**, 1833–1840 (1968)

☐ **Koashvite**, $Na_6(Ca,Mn)(Ti,Fe)Si_6O_{18}\cdot H_2O$, orth., pale yellow, *Lovozerite* group, **60**, 487 (1975)

☐ **Kobeite-(Y)**, $(Y,U)(Ti,Nb)_2(O,OH)_6$ (?), amor., **42**, 342 (1957)

☐ **Kobellite**, $Pb_{22}Cu_4(Bi,Sb)_{30}S_{69}$, orth., forms a series with **Tintinaite**, compare **Izoklakeite**, **54**, 573 (1969)

☐ **Kochkarite**, $PbBi_4Te_7$, hex.

☐ **Koechlinite**, Bi_2MoO_6, orth., greenish-yellow, isostructural with **Russellite**

☐ **Koenenite**, $Na_4Mg_9Al_4Cl_{12}(OH)_{22}$, trig.

Koettigite, see **Köttigite**

☐ **Kogarkoite**, $Na_3(SO_4)F$, mon., **58**, 116–127 (1973)

☐ **Koktaite**, $(NH_4)_2Ca(SO_4)_2\cdot H_2O$, mon., compare **Syngenite**, **34**, 618 (1949)

☐ **Kolarite**, $PbTeCl_2$, orth., **71**, 1545 (1986)

☐ **Kolbeckite**, $ScPO_4 \cdot 2H_2O$, mon., compare **Metavariscite**, **Phosphosiderite**, **25**, 513 (1940), **45**, 257 (1960)

☐ **Kolfanite**, $Ca_2Fe^{3+}_3O_2(AsO_4)_3 \cdot 2H_2O$, mon., red to orange, **68**, 280 (1983)

☐ **Kolicite**, $Mn^{2+}_7Zn_4(AsO_4)_2(SiO_4)_2(OH)_8$, orth., yellow-orange, **64**, 708–712 (1979)

☐ **Kolovratite**, hydrous vanadate of Ni and Zn, yellow, **47**, 1222 (1962)

☐ **Kolwezite**, $(Cu^{2+},Co)_2(CO_3)(OH)_2$, tric., black to beige, *Rosasite* group, **65**, 1067 (1980)

☐ **Kolymite**, Cu_7Hg_6, cub., dimorph. with **Belendorffite**, **66**, 218 (1981)

☐ **Komarovite**, $(H,Ca)_2Nb_2Si_2O_{10}(OH,F)_2 \cdot H_2O$, orth., pale rose, **57**, 1315 (1972)

☐ **Kombatite**, $Pb_{14}(VO_4)_2O_9Cl_4$, mon., bright yellow, compare **Sahlinite**, **73**, 938 (1988), **79**, 550–554 (1994)

☐ **Komkovite**, $BaZrSi_3O_9 \cdot 3H_2O$, trig., brown, **77**, 207–208 (1992), **78**, 454 (1993)

☐ **Konderite**, $PbCu_3(Rh,Pt,Ir)_4S_{16}$, hex., compare **Inaglyite**, **71**, 229 (1986)

Kongsbergite = mercurian **Silver**, (Ag,Hg), cub.

☐ **Koninckite**, $Fe^{3+}PO_4 \cdot 3H_2O$ (?), tet., yellow

☐ **Konyaite**, $Na_2Mg(SO_4)_2 \cdot 5H_2O$, mon., **67**, 1035–1038 (1982)

☐ **Koritnigite**, $Zn(As^{5+}O_3)(OH) \cdot H_2O$, tric., compare **Cobaltkoritnigite**, **65**, 206 (1980)

☐ **Kornelite**, $Fe^{3+}_2(SO_4)_3 \cdot 7H_2O$, mon., pink to violet

☐ **Kornerupine**, $Mg_4(Al,Fe^{3+})_6(Si,B)_4O_{21}(OH)$, orth., green, **74**, 642–655 (1989)

☐ **Kornite**, $(K,Na)(Na,Li)_2(Mg,Mn^{3+},Li,Fe^{3+})_4Si_8O_{22}(OH)_2$, mon., dark red to brownish lilac, *Amphibole* group, **79**, 764 (1994)

☐ **Korshunovskite**, $Mg_2Cl(OH)_3 \cdot 3.5–4H_2O$, tric., **68**, 643 (1983)

☐ **Korzhinskite**, $CaB_2O_4 \cdot H_2O$, **49**, 441 (1964)

☐ **Kosmochlor**, $NaCr^{3+}Si_2O_6$, mon., emerald-green, *Pyroxene* group, **50**, 2096 (1965), **53**, 511 (1968)

☐ **Kosnarite**, $KZr_2(PO_4)_3$, trig., ps. cub., pale blue to pale green to colorless, **78**, 653–656 (1993)

☐ **Kostovite**, $CuAuTe_4$, orth., compare **Sylvanite**, **51**, 29–36 (1966)

☐ **Kostylevite**, $K_2ZrSi_3O_9 \cdot H_2O$, mon., dimorph. with **Umbite**, **69**, 812 (1984)

☐ **Kotoite**, $Mg_3B_2O_6$, orth., compare **Jimboite**, **24**, 406 (1939)

☐ **Köttigite**, $Zn_3(AsO_4)_2 \cdot 8H_2O$, mon., forms a series with **Parasymplesite**, *Vivianite* group

☐ **Kotulskite**, Pd(Te,Bi), hex., **48**, 1181 (1963)

☐ **Koutekite**, Cu_5As_2, hex., **43**, 794 (1958), **46**, 467 (1961), **78**, 677 (1993)

☐ **Kovdorskite**, $Mg_2(PO_4)(OH) \cdot 3H_2O$, mon., pale rose, **66**, 437 (1981)

☐ **Kozulite**, $Na_3Mn_4^{2+}(Fe^{3+},Al)Si_8O_{22}(OH,F)_2$, mon., *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Kraisslite**, $(Mn^{2+},Mg)_{24}Zn_3Fe^{3+}(As^{3+}O_3)_2(As^{5+}O_4)_3(SiO_4)_6(OH)_{18}$, hex., deep coppery-brown, **63**, 938–940 (1978), **65**, 957–960 (1980)

☐ **Kratochvilite**, $C_{13}H_{10}$, (fluorene), orth., **23**, 667 (1938)

☐ **Krausite**, $KFe^{3+}(SO_4)_2 \cdot H_2O$, mon., pale green, **16**, 352–360 (1931), **71**, 202–205 (1986)

☐ **Krauskopfite**, $BaSi_2O_4(OH)_2 \cdot 2H_2O$, mon., **50**, 314–340 (1965)

☐ **Krautite**, $Mn^{2+}As^{5+}O_4(OH) \cdot H_2O$, mon., pink, **61**, 503 (1976), **64**, 1248–1254 (1979)

☐ **Kremersite**, $(NH_4,K)_2Fe^{3+}Cl_5 \cdot H_2O$, orth., red, compare **Erythrosiderite**

☐ **Krennerite**, $(Au,Ag)Te_2$, orth.

☐ **Kribergite**, $Al_5(PO_4)_3(SO_4)(OH)_4 \cdot 4H_2O$

☐ **Krinovite**, $Na_2Mg_4Cr_2Si_6O_{20}$, tric., emerald-green, *Aenigmatite* group, **54**, 578 (1969)

☐ **Kröhnkite (Kroehnkite)**, $Na_2Cu^{2+}(SO_4)_2 \cdot 2H_2O$, mon., blue

☐ **Krupkaite**, $PbCuBi_3S_6$, orth., **60**, 300–308, 737 (1975)

☐ **Krutaite**, $CuSe_2$, cub., *Pyrite* group, **59**, 210 (1974)

☐ **Krutovite**, $NiAs_2$, cub., trimorph. with **Rammelsbergite** and **Pararammelsbergite**, **62**, 173–174 (1977)

☐ **Kryzhanovskite**, $Mn^{2+}Fe^{3+}_2(PO_4)_2(OH)_2 \cdot H_2O$, orth., brown, forms a series with **Garyansellite**, **36**, 382 (1951), **56**, 1–17 (1971)

☐ **Ktenasite**, $(Cu^{2+},Zn)_5(SO_4)_2(OH)_6 \cdot 6H_2O$, mon., blue-green, **36**, 381 (1951), **62**, 1262 (1977)

☐ **Kukisvumite**, $Na_6ZnTi_4Si_8O_{28} \cdot 4H_2O$, orth.

☐ **Kuksite**, $Pb_3Zn_3Te^{6+}O_6(PO_4)_3$, orth.

☐ **Kulanite**, $Ba(Fe^{2+},Mn,Mg)_2Al_2(PO_4)_3(OH)_3$, tric., ps. mon., blue-green, forms a series with **Penikisite**, *Bjarebyite* group, **62**, 174 (1977)

Kularite = **Monazite-(Ce)**, **69**, 210 (1984)

☐ **Kuliokite-(Y)**, $(Y,Yb)_4Al(SiO_4)_2(OH)_2F_5$, tric., **73**, 192 (1988)

☐ **Kulkeite**, $Na_{0.35}Mg_6Al(AlSi_7)O_{20}(OH)_{10}$, mon., 1:1 regular interstratification of **Talc** and trioctahedral *Chlorite*, **66**, 218 (1981), **67**, 394–398 (1982)

☐ **Kullerudite**, $NiSe_2$, orth., *Marcasite* group, **50**, 519–520 (1965)

Kunzite, a lilac gem var. of **Spodumene**

☐ **Kupletskite**, $(K,Na)_3(Mn,Fe^{2+})_7(Ti,Nb)_2Si_8O_{24}(O,OH)_7$, tric., forms two series, with **Astrophyllite**, and with **Cesium kupletskite**, *Astrophyllite* group, **42**, 118 (1957)

☐ **Kuramite**, Cu_3SnS_4, tet., *Stannite* group, **65**, 1067 (1980)

☐ **Kuranakhite**, $PbMn^{4+}Te^{6+}O_6$, orth., brownish to nearly black, **61**, 339 (1976)

☐ **Kurchatovite**, $Ca(Mg,Mn^{2+},Fe^{2+})B_2O_5$, orth., dimorph. with **Clinokurchatovite**, **51**, 1817 (1966)

Kurgantaite = strontian **Tyretskite**, **69**, 214 (1984)

Kurilite, $Ag_2(Te,Se)$, cub., **77**, 208 (1992)

☐ **Kurnakovite**, $MgB_3O_3(OH)_5 \cdot 5H_2O$, tric., dimorph. with **Inderite**

Kurskite = **Carbonate-fluorapatite** or **Carbonate-hydroxylapatite**

☐ **Kurumsakite**, $(Zn,Ni,Cu^{2+})_8Al_8V_2^{5+}Si_5O_{35} \cdot 27H_2O$ (?), orth. (?), yellow, **42**, 583 (1957)

Küstelite = auroan **Silver**, (Ag,Au), cub.

Kusuite = **Wakefieldite-(Ce)**

☐ **Kutinaite**, $Cu_{14}Ag_6As_7$, cub., **55**, 1083–1087 (1970)

☐ **Kutnohorite** (Kutnahorite), $Ca(Mn^{2+},Mg,Fe^{2+})(CO_3)_2$, trig., forms two series, with **Dolomite**, and **with Ankerite**, *Dolomite* group

☐ **Kuzminite**, $Hg_2^{1+}(Br,Cl)_2$, tet., forms a series with **Calomel**, **73**, 192 (1988)

☐ **Kuznetsovite**, $Hg_2^{1+}Hg^{2+}Cl(AsO_4)$, cub., yellow to brown, **66**, 1100 (1981)

☐ **Kvanefjeldite**, $Na_4(Ca,Mn^{2+})Si_6O_{14}(OH)_2$, orth., pink, **70**, 873 (1985)

☐ **Kyanite**, Al_2SiO_5, tric., blue, green, trimorph. with **Andalusite** and **Sillimanite**

☐ **Kyzylkumite**, $V_2^{3+}Ti_3O_9$, mon., black, dimorph. with **Schreyerite**, **67**, 855–856 (1982)

Labradorite, see **Plagioclase**, *Feldspar* group

☐ **Labuntsovite**, $(K,Ba,Na)(Ti,Nb)(Si,Al)_2(O,OH)\cdot H_2O$, mon., **41**, 163 (1956)

☐ **Lacroixite**, $NaAl(PO_4)F$, mon., yellow, compare **Durangite**, **57**, 1914 (1972), **70**, 849–855 (1985)

☐ **Laffittite**, $AgHgAsS_3$, mon., dark red, compare **Freieslebenite**, **Marrite**, **60**, 945–946 (1975)

☐ **Laihunite**, $Fe^{2+}Fe_2^{3+}(SiO_4)_2$, mon., black, **62**, 1058 (1977)

☐ **Laitakarite**, $Bi_4(Se,S)_3$, trig., compare **Ikunolite**, **44**, 908 (1959), **76**, 257–265 (1991)

☐ **Lammerite**, $Cu_3^{2+}[(As,P)O_4]_2$, mon., dark green, **67**, 415 (1982), **71**, 206–209 (1986)

☐ **Lamprophyllite**, $Na_2(Sr,Ba)_2Ti_3(SiO_4)_4(OH,F)_2$, mon., compare **Barytolamprophyllite**

☐ **Lanarkite**, $Pb_2(SO_4)O$, mon., compare **Phoenicochroite**

☐ **Landauite**, $NaMn^{2+}Zn_2(Ti,Fe^{3+})_6Ti_{12}O_{38}$, mon., ps. trig., black, *Crichtonite* group, **51**, 546 (1966), *Can. Min.* **16**, 63–65 (1975)

☐ **Landesite**, $(Mn^{2+},Mg)_9Fe_3^{3+}(PO_4)_8(OH)_3\cdot 9H_2O$, orth., **15**, 384–385 (1930), **49**, 1122–1125 (1964)

☐ **Langbanite**, $(Mn^{2+},Ca)_4(Mn^{3+},Fe^{3+})_9Sb^{5+}Si_2O_{24}$, trig. and mon., **55**, 1489–1499 (1970)

☐ **Langbeinite**, $K_2Mg_2(SO_4)_3$, cub., compare **Efremovite** and **Manganolangbeinite**

☐ **Langisite**, (Co,Ni)As, hex., *Nickeline* group, **57**, 1910–1911 (1972)

☐ **Langite**, $Cu_4^{2+}(SO_4)(OH)_6\cdot 2H_2O$, mon., greenish-blue, dimorph. with **Wroewolfeite**

☐ **Lannonite**, $HCa_4Mg_2Al_4(SO_4)_8F_9 \cdot 3H_2O$, tet., **69**, 407 (1984)

☐ **Lansfordite**, $MgCO_3 \cdot 5H_2O$, mon.

☐ **Lanthanite-(Ce)**, $(Ce,La,Nd)_2(CO_3)_3 \cdot 8H_2O$, orth., **70**, 411–413 (1985)

☐ **Lanthanite-(La)**, $(La,Ce)_2(CO_3)_3 \cdot 8H_2O$, orth.

☐ **Lanthanite-(Nd)**, $(Nd,La)_2(CO_3)_3 \cdot 8H_2O$, orth., **66**, 637–638 (1981)

☐ **Laphamite**, $As_2(Se,S)_3$, mon., dark red, compare **Orpiment**, **72**, 1024–1025 (1987)

☐ **Lapieite**, $CuNiSbS_3$, orth., compare **Mückeite**, **70**, 1329–1330 (1985)

Lapis lazuli = gem **Lazurite**

☐ **Laplandite-(Ce)**, $Na_4CeTiPSi_7O_{22} \cdot 5H_2O$, orth., **60**, 487 (1975)

Lapparentite (of Rost) = **Khademite**

☐ **Larderellite**, $(NH_4)B_5O_6(OH)_4$, mon.

☐ **Larnite**, β–Ca_2SiO_4, mon., **14**, 338 (1929)

☐ **Larosite**, $(Cu,Ag)_{21}(Pb,Bi)_2S_{13}$, orth., **59**, 382 (1974)

☐ **Larsenite**, $PbZnSiO_4$, orth., **14**, 334–339 (1929)

☐ **Latiumite**, $(Ca,K)_8(Al,Mg,Fe)(Si,Al)_{10}O_{25}(SO_4)$, mon., compare **Tuscanite**, **39**, 402 (1954)

☐ **Latrappite**, $(Ca,Na)(Nb,Ti,Fe)O_3$, orth., *Perovskite* group, **50**, 265 (1965)

Laubmannite, a mixt. of **dufrenite**, **kidwellite**, and **beraunite**, **75**, 1197–1199 (1990)

☐ **Laueite**, $Mn^{2+}Fe_2^{3+}(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., dimorph. with **Stewartite**, *Paravauxite* group, **39**, 1038 (1954)

☐ **Laumontite**, $CaAl_2Si_4O_{12} \cdot 4H_2O$, mon., *Zeolite* group

☐ **Launayite**, $Pb_{22}Sb_{26}S_{61}$, mon., **53**, 1423 (1968)

☐ **Laurelite**, $Pb(F,Cl,OH)_2$, hex., **74**, 927–933 (1989)

☐ **Laurionite**, PbCl(OH), orth., dimorph. with **Paralaurionite**

☐ **Laurite**, RuS_2, cub., forms a series with **Erlichmanite**, *Pyrite* group, **54**, 1330–1346 (1969)

☐ **Lausenite**, $Fe_2^{3+}(SO_4)_3 \cdot 6H_2O$, mon.

☐ **Lautarite**, $Ca(IO_3)_2$, mon.

☐ **Lautenthalite**, $PbCu_4(OH)_6(SO_4)_2 \cdot 3H_2O$, mon., bright blue, compare **Devilline**, **79**, 571 (1994)

☐ **Lautite**, CuAsS, orth.

☐ **Lavendulan**, $NaCaCu_5^{2+}(AsO_4)_4Cl \cdot 5H_2O$, orth., compare **Sampleite**, **42**, 123 (1957)

☐ **Lavenite**, $(Na,Ca)_2(Mn^{2+},Fe^{2+})(Zr,Ti)Si_2O_7(O,OH,F)_2$, mon., compare **Baghdadite**, **Burpalite**

☐ **Lavrentievite**, $Hg_3S_2(Cl,Br)_2$, mon. or tric., forms a series with **Arzakite**, dimorph. with **Corderoite**, **70**, 873–874 (1985)

☐ **Lawrencite**, $(Fe^{2+},Ni)Cl_2$, trig.

☐ **Lawsonbauerite**, $(Mn^{2+},Mg)_9Zn_4(SO_4)_2(OH)_{22} \cdot 8H_2O$, mon., compare **Torreyite**, **67**, 1029–1034 (1982)

☐ **Lawsonite**, $CaAl_2Si_2O_7(OH)_2 \cdot H_2O$, orth., dimorph. with **Partheite**

☐ **Lazarenkoite**, $(Ca,Fe^{2+})Fe^{3+}As_3^{5+}O_7 \cdot 3H_2O$, orth., **67**, 415 (1982)

☐ **Lazulite**, $MgAl_2(PO_4)_2(OH)_2$, mon., blue, forms a series with **Scorzalite**, *Lazulite* group

☐ **Lazurite**, $(Na,Ca)_{7-8}(Al,Si)_{12}(O,S)_{24}[(SO_4),Cl_2,(OH)_2]$, cub., (also orth., mon., tric.), blue, *Sodalite* group, **76**, 1734 (1991), **78**, 849 (1993)

☐ **Lead**, Pb, cub.

☐ **Leadamalgam**, $HgPb_2$, tet., compare Altmarkite, **70**, 216 (1985)

☐ **Leadhillite**, $Pb_4(SO_4)(CO_3)_2(OH)_2$, mon., ps. trig., trimorph. with **Macphersonite** and **Susannite**

☐ **Leakeite**, $NaNa_2(Mg_2Fe^{2+}_2Li)Si_8O_{22}(F,OH)_2$, mon., deep red, *Amphibole* group, **77**, 1112–1115 (1992)

Lechatelierite, SiO_2, natural fused silica

☐ **Lecontite**, $(NH_4,K)Na(SO_4)\cdot 2H_2O$, orth.

☐ **Legrandite**, $Zn_2(AsO_4)(OH)\cdot H_2O$, mon., **48**, 1255–1265 (1963)

Lehiite, a mixture, **71**, 1516 (1986)

☐ **Lehnerite**, $Mn^{2+}U^{6+}(PO_4)_2O\cdot 8H_2O$, mon., yellow to bronze

☐ **Leifite**, $Na_2(Si,Al,Be)_7(O,OH,F)_{14}$, trig., **57**, 1006 (1972)

☐ **Leightonite**, $K_2Ca_2Cu^{2+}(SO_4)_4\cdot 2H_2O$, tric., ps. orth., blue, compare **Polyhalite**, **23**, 34–37 (1938)

☐ **Leiteite**, $ZnAs^{3+}_2O_4$, mon., colorless to brown, **62**, 1259–1260 (1977), **72**, 629–632 (1987)

☐ **Lemoynite**, $(Na,K)_2CaZr_2Si_{10}O_{26}\cdot 5–6H_2O$, mon., **57**, 1913 (1972)

☐ **Lengenbachite**, $Pb_6(Ag,Cu)_2As_4S_{13}$, tric., **73**, 1426–1433 (1988)

☐ **Leningradite**, $PbCu^{2+}_3(VO_4)_2Cl_2$, orth., reddish-brown

☐ **Lennilenapeite**, $K_{6-7}(Mg,Mn^{2+},Fe^{2+},Zn)_{48}(Si,Al)_{72}(O,OH)_{216}\cdot 16H_2O$, tric., compare **Franklinphilite** and **Stilpnomelane**, **70**, 216 (1985)

☐ **Lenoblite**, $V^{4+}_2O_4\cdot 2H_2O$, deep blue, **56**, 635–636 (1971)

Leonhardite = partially dehydrated **Laumontite**

Leonhardtite = **Starkeyite**, **42**, 443 (1957)

☐ **Leonite**, $K_2Mg(SO_4)_2\cdot 4H_2O$, mon.

☐ **Lepersonnite-(Gd)**, $CaO\cdot(Gd,Dy)_2O_3\cdot 24UO_3\cdot 8CO_2\cdot 4SiO_2\cdot 60H_2O$, orth., yellow, **68**, 1248 (1983)

☐ **Lepidocrocite**, γ–$Fe^{3+}O(OH)$, orth., trimorph. with **Feroxyhyte** and **Goethite**, compare **Akaganeite**

☐ **Lepidolite**, $K(Li,Al)_3(Si,Al)_4O_{10}(F,OH)_2$, mon., *Mica* group

Lepidomelane = ferrian **Biotite**

☐ **Lermontovite**, $U^{4+}(PO_4)(OH)\cdot H_2O$ (?), orth., fibrous, gray-green, **43**, 379 (1958), **69**, 214–215 (1984)

☐ **Letovicite**, $(NH_4)_3H(SO_4)_2$, tric., **18**, 180 (1933), **70**, 1334 (1985)

Leuchtenbergite, a var. of **Clinochlore**

☐ **Leucite**, $KAlSi_2O_6$, tet., compare **Ammonioleucite**

☐ **Leucophanite**, $(Ca,REE)CaNa_2Be_2Si_4O_{12}(F,O)_2$, tric., ps. orth., related to the *Melilite* group, **78**, 677 (1993)

☐ **Leucophoenicite**, $Mn_7^{2+}(SiO_4)_3(OH)_2$, mon., light red, *Humite* group, **55**, 1146–1166 (1970)

☐ **Leucophosphite**, $KFe_2^{3+}(PO_4)_2(OH)\cdot 2H_2O$, mon., compare **Sphenisciditе**, **Tinsleyite**

☐ **Leucosphenite**, $BaNa_4Ti_2B_2Si_{10}O_{30}$, mon., **57**, 1801–1822 (1972)

Leucoxene, a general term for alteration products of **Ilmenite**

☐ **Levyclaudite**, $Pb_8Sn_7Cu_3(Bi,Sb)_3S_{28}$, mon., compare **Cylindrite**, *Eur. J. Min.* **2**, no. 5 (1990)

☐ **Levyne** (Levynite), $(Ca,Na_2,K_2)Al_2Si_4O_{12}\cdot 6H_2O$, trig., *Zeolite* group, **61**, 853–863 (1976)

☐ **Lewisite**, $(Ca,Fe^{2+},Na)_2(Sb,Ti)_2O_7$, cub., *Stibiconite* group

☐ **Liandratite**, $U^{6+}(Nb,Ta)_2O_8$, hex., usually metamict, yellow to yellow-brown, **63**, 941–946 (1978)

☐ **Liberite**, Li_2BeSiO_4, mon., **50**, 519 (1965)

☐ **Libethenite**, $Cu_2^{2+}(PO_4)(OH)$, orth., dark green, compare **Olivenite**

☐ **Liddicoatite**, $Ca(Li,Al)_3Al_6(BO_3)_3Si_6O_{18}(O,OH,F)_4$, trig., brown, green, pink, red, *Tourmaline* group, **62**, 1121–1124 (1977)

☐ **Liebauite**, $Ca_3Cu_5^{2+}Si_6O_{26}$, mon., greenish blue, *Zeit. Krist.* **200**, 115–126 (1991), **78**, 673 (1993)

☐ **Liebenbergite**, $(Ni,Mg)_2SiO_4$, orth., yellow-green, *Olivine* group, **58**, 733–735 (1973)

☐ **Liebigite**, $Ca_2(UO_2)(CO_3)_4 \cdot 11H_2O$, orth., apple-green

☐ **Likasite**, $Cu_3^{2+}(NO_3)(OH)_5 \cdot 2H_2O$, orth., blue, **40**, 942 (1955), **72**, 1025 (1987)

☐ **Lillianite**, $Pb_3Bi_2S_6$, orth., forms a series with **Gustavite**, **54**, 579 (1969)

☐ **Lime**, CaO, cub.

Limonite, a general term for hydrous iron oxides, mostly **Goethite**

☐ **Linarite**, $PbCu^{2+}(SO_4)(OH)_2$, mon., azure-blue, compare **Schmiederite**

☐ **Lindackerite**, $H_2Cu_5^{2+}(AsO_4)_4 \cdot 8–9H_2O$, mon., green, **42**, 124 (1957)

☐ **Lindgrenite**, $Cu_3^{2+}(MoO_4)_2(OH)_2$, mon., green, **20**, 484–491 (1935)

☐ **Lindqvistite**, $Pb_2(Mg,Fe^{2+})Fe_{16}^{3+}O_{27}$, hex., compare **Magnetoplumbite**, **78**, 1304–1312 (1993)

☐ **Lindsleyite**, $(Ba,Sr)(Ti,Cr,Fe,Mg,Zr)_{21}O_{38}$, trig., black, *Crichtonite* group, **68**, 494–505 (1983)

☐ **Lindströmite**, $Pb_3Cu_3Bi_7S_{15}$, orth., **61**, 15–20 (1976)

Lingaitukuang = **Brabantite** (?), **66**, 878–879 (1981)

☐ **Linnaeite** (Linneite), $Co^{2+}Co_2^{3+}S_4$, cub., forms a series with **Polydymite**, *Linnaeite* group

☐ **Lintisite**, $Na_3LiTi_2Si_4O_{14} \cdot 2H_2O$, mon., **76**, 1730 (1991)

☐ **Liottite**, $(Ca,Na,K)_8(Si,Al)_{12}O_{24}[(SO_4),(CO_3),Cl,OH]_4 \cdot H_2O$, hex., *Cancrinite* group, **62**, 321–326 (1977)

☐ **Lipscombite**, $(Fe^{2+},Mn^{2+})Fe_2^{3+}(PO_4)_2(OH)_2$, tet., **38**, 612–638 (1953)

☐ **Liroconite**, $Cu_2^{2+}Al(AsO_4)(OH)_4 \cdot 4H_2O$, mon., blue to green

☐ **Lisetite**, $Na_2CaAl_4Si_4O_{16}$, orth., **71**, 1372–1383 (1986)

☐ **Lishizhenite**, $ZnFe_2^{3+}(SO_4)_4 \cdot 14H_2O$, tric., pale violet

☐ **Liskeardite**, $(Al,Fe^{3+})_3(AsO_4)(OH)_6 \cdot 5H_2O$, orth. (?)

☐ **Litharge**, PbO, tet., red, dimorph. with **Massicot**

☐ **Lithiomarsturite**, $LiCa_2Mn_2^{2+}HSi_5O_{15}$, tric., pinkish-brown to light yellow, compare **Marsturite**, **Nambulite**, **Natronambulite**, **75**, 409–414 (1990)

☐ **Lithiophilite**, $LiMn^{2+}PO_4$, orth., forms a series with **Triphylite**

☐ **Lithiophorite**, $(Al,Li)Mn^{4+}O_2(OH)_2$, trig., **79**, 370–374 (1994)

☐ **Lithiophosphate**, Li_3PO_4, orth., **42**, 585 (1957)

☐ **Lithiotantite**, $Li(Ta,Nb)_3O_8$, mon., **69**, 1191–1192 (1984)

☐ **Lithiowodginite**, $LiTa_3O_8$, mon., dark pink to red, compare **Ferrowodginite**, **Titanowodginite**, and **Wodginite**, **76**, 667–668 (1991)

☐ **Lithosite**, $K_6Al_4Si_8O_{25} \cdot 2H_2O$, mon., ps. orth., **69**, 210 (1984)

☐ **Litidionite**, $KNaCuSi_4O_{10}$, tric., blue, **60**, 471–474 (1975)

Liujinyinite = **Uytenbogaardtite** (?), **65**, 810 (1980)

☐ **Liveingite**, $Pb_9As_{13}S_{28}$, mon.

☐ **Livingstonite**, $HgSb_4S_8$, mon.

☐ **Lizardite**, $Mg_3Si_2O_5(OH)_4$, trig. and hex., polymorph. with **Antigorite**, **Clinochrysotile**, **Orthochrysotile**, and **Parachrysotile**, forms a series with **Nepouite**, *Kaolinite-Serpentine* group

Loellingite = **Löllingite**

Loeweite = **Löweite**

☐ **Lokkaite-(Y)**, $CaY_4(CO_3)_7 \cdot 9H_2O$, orth., **56**, 1838 (1971), **71**, 1028–1033 (1986)

☐ **Löllingite**, $FeAs_2$, orth., *Löllingite* group

☐ **Lomonosovite**, $Na_2Ti_2Si_2O_9 \cdot Na_3PO_4$, tric., compare **Polyphite**, **Quadruphite**, and **Sobolevite**, **35**, 1092 (1950)

☐ **Lonecreekite**, $(NH_4)(Fe^{3+},Al)(SO_4)_2 \cdot 12H_2O$, cub., compare **Potassium Alum** and **Tschermigite**, **71**, 229 (1986)

☐ **Lonsdaleite**, C, hex., polymorph. with **Diamond**, **Graphite**, **Chaoite**, **52**, 1579 (1967)

☐ **Loparite-(Ce)**, (Ce,Na,Ca)(Ti,Nb)O_3, orth. (?), ps. cub., *Perovskite* group, **12**, 97 (1927)

☐ **Lopezite**, $K_2Cr_2^{6+}O_7$, tric., orange-red, **22**, 929–930 (1937)

☐ **Lorandite**, $TlAsS_2$, mon., red.

☐ **Loranskite-(Y)**, (Y,Ce,Ca)$ZrTaO_6$ (?)

☐ **Lorenzenite**, $Na_2Ti_2Si_2O_9$, orth., **32**, 59–63 (1947)

Lorettoite, $Pb_7O_6Cl_2$, tet., yellow (an artifact), **2**, 26 (1917), **64**, 1303–1305 (1979)

☐ **Loseyite**, $(Mn^{2+},Zn)_7(CO_3)_2(OH)_{10}$, mon., compare **Sclarite**, **14**, 150–153 (1929)

☐ **Lotharmeyerite**, $CaZnMn^{3+}(As^{5+}O_3OH)_2(OH)_3$, mon., reddish-orange, compare **Ferrilotharmeyerite**, *Mineral. Rec.* **14**, 35–36 (1983), **68**, 849 (1983), **70**, 1334 (1985)

☐ **Loudounite**, $NaCa_5Zr_4Si_{16}O_{40}(OH)_{11} \cdot 8H_2O$, **68**, 1039 (1983)

☐ **Loughlinite**, $Na_2Mg_3Si_6O_{16} \cdot 8H_2O$, orth., **45**, 270–281 (1960)

☐ **Lourenswalsite**, $(K,Ba)_2(Ti,Mg,Ca,Fe)_4(Si,Al,Fe)_6O_{14}(OH)_{12}$, hex., silver-gray to light brownish-gray, **73**, 1493–1494 (1988)

☐ **Lovdarite**, $K_2Na_{12}(Be_8Si_{28}O_{72})\cdot 18H_2O$, orth., **59**, 874 (1974), **77**, 212 (1992)

☐ **Loveringite**, $(Ca,Ce)(Ti,Fe^{3+},Cr,Mg)_{21}O_{38}$, trig., *Crichtonite* group, **63**, 28–36 (1978)

☐ **Lovozerite**, $Na_2Ca(Zr,Ti)Si_6(O,OH)_{18}$, trig. (?), *Lovozerite* group, **25**, 504 (1940), **59**, 633 (1974)

☐ **Löweite**, $Na_{12}Mg_7(SO_4)_{13}\cdot 15H_2O$, trig., **55**, 378–386 (1970)

☐ **Luanheite**, Ag_3Hg, hex., **73**, 192–193 (1988)

☐ **Luberoite**, Pt_5Se_4, mon., **78**, 450–451 (1993)

☐ **Lucasite-(Ce)**, $(Ce,La)Ti_2(O,OH)_6$, mon., dark brown, dimorph. with **Aeschynite-(Ce)**, **72**, 1006–1010 (1987)

☐ **Luddenite**, $Pb_2Cu_2^{2+}Si_5O_{14}\cdot 14H_2O$, mon., green, **68**, 643 (1983)

☐ **Ludjibaite**, $Cu_5^{2+}(PO_4)_2(OH)_4$, tric., blue-green, trimorph. with **Pseudomalachite** and **Reichenbachite**, **73**, 1495 (1988)

☐ **Ludlamite**, $(Fe^{2+},Mg,Mn^{2+})_3(PO_4)_2\cdot 4H_2O$, mon., green

☐ **Ludlockite**, $(Fe^{2+},Pb)As_2^{5+}O_6$, tric., red, **57**, 1003 (1972)

☐ **Ludwigite**, $Mg_2Fe^{3+}BO_5$, orth., forms a series with **Vonsenite**, *Ludwigite* group

☐ **Lueshite**, $NaNbO_3$, mon., ps. cub., dimorph. with **Natroniobite**, *Perovskite* group, **46**, 1004 (1961)

☐ **Luetheite**, $Cu_2^{2+}Al_2(AsO_4)_2(OH)_4\cdot H_2O$, mon., blue to greenish-blue, compare **Chenevixite**, **62**, 1058 (1977)

☐ **Lüneburgite**, $Mg_3B_2(PO_4)_2(OH)_6\cdot 5H_2O$, mon.

☐ **Lunijianlaite**, a regular 1:1 interstratification of **Cookeite** and **Pyrophyllite**, mon.

☐ **Lun'okite**, $(Mn^{2+},Ca)(Mg,Fe^{2+},Mn^{2+})Al(PO_4)_2(OH)\cdot 4H_2O$, orth., *Overite* group, **69**, 210–211 (1984)

Lusakite = cobaltoan **Staurolite**, $(Fe^{2+},Mg,Co)_2Al_9(Si,Al)_4O_{22}(OH)_2$, orth., blue, **20**, 316 (1935)

☐ **Lusungite**, $(Sr,Pb)Fe_3^{3+}(PO_4)_2(OH)_5 \cdot H_2O$, trig., *Crandallite* group, **44**, 906 (1959)

☐ **Luzonite**, Cu_3AsS_4, tet., dimorph. with **Enargite**, *Stannite* group, **42**, 766–779 (1957)

☐ **Lyonsite**, $Cu_3^{2+}Fe_4^{3+}(VO_4)_6$, orth., black, **72**, 1000–1005 (1987)

- **Macaulayite**, $(Fe^{3+},Al)_{24}Si_4O_{43}(OH)_2$, mon., blood-red, **70**, 1330 (1985)
- **Macdonaldite**, $BaCa_4Si_{16}O_{36}(OH)_2 \cdot 10H_2O$, orth., **50**, 314–340 (1965)
- **Macedonite**, $PbTiO_3$, tet., **56**, 387–394 (1971)
- **Macfallite**, $Ca_2Mn^{3+}_3(SiO_4)(Si_2O_7)(OH)_3$, mon., reddish-brown, compare **Orientite**, **Sursassite**, **65**, 406 (1980)
- **Machatschkiite**, $(Ca,Na)_6(As^{5+}O_4)[(As^{5+}O_3OH)_3(PO_4,SO_4)] \cdot 15H_2O$, trig., **62**, 1260 (1977), **68**, 851–852 (1983)
- **Mackayite**, $Fe^{3+}Te_2O_5(OH)$, tet., green, **29**, 211–225 (1944), **55**, 1072 (1970)
- **Mackinawite**, Fe_9S_8, tet., **48**, 215 (1963), *Eur. J. Min.* **6**, 265–278 (1994)
- **Macphersonite**, $Pb_4(SO_4)(CO_3)_2(OH)_2$, orth., trimorph. with **Leadhillite** and **Susannite**, **70**, 874 (1985)
- **Macquartite**, $Pb_3Cu^{2+}(CrO_4)SiO_3(OH)_4 \cdot 2H_2O$, mon., orange, **66**, 638 (1981)
- **Madocite**, $Pb_{17}(Sb,As)_{16}S_{41}$, orth., **53**, 1421 (1968)
- **Magadiite**, $NaSi_7O_{13}(OH)_3 \cdot 4H_2O$, mon., **53**, 510, 2061–2069 (1968), **60**, 642–649 (1975)
- **Magbasite**, $KBa(Al,Sc)(Mg,Fe^{2+})_6Si_6O_{20}F_2$, **51**, 530 (1966)
- **Maghagendorfite**, $NaMn^{2+}Mg(Fe^{2+},Fe^{3+})_2(PO_4)_3$, mon., *Alluaudite* group, **65**, 810–811 (1980)
- **Maghemite**, γ–Fe_2O_3, dimorph. with **Hematite**
- **Magnesio-aluminokatophorite**, $Na_2Ca(Mg,Fe^{2+})_4Al(Si_7Al)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Aluminokatophorite**, compare **Ferrikatophorite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesio-anthophyllite**, $(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$, orth., $Mg/(Mg + Fe^{2+}) = 0.9–1.0$, forms a series with **Anthophyllite** and **Ferroanthophyllite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesio-arfvedsonite**, $Na_3(Mg,Fe^{2+})_4Fe^{3+}Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, $Fe^{3+}/(Fe^{3+} + Al) = 0.5–1.0$, forms a series with **Arfvedsonite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesioaubertite**, $(Mg,Cu^{2+})Al(SO_4)_2Cl·14H_2O$, tric., sky-blue, compare **Aubertite**, **Svyazhinite**

☐ **Magnesio-axinite**, $Ca_3MgAl_2BSi_4O_{15}(OH)$, tric., blue, *Axinite* group, **61**, 503–504 (1976)

☐ **Magnesiocarpholite**, $MgAl_2Si_2O_6(OH)_4$, orth., green, forms a series with **Ferrocarpholite**, compare **Carpholite**, **65**, 406 (1980)

☐ **Magnesiochloritoid**, $MgAl_2SiO_5(OH)_2$, tric., compare **Chloritoid**, **Ottrelite**, **70**, 216–217 (1985), **73**, 359–364 (1988)

☐ **Magnesiochromite**, $MgCr_2O_4$, cub., forms two series, with **Chromite**, and with **Spinel**, *Spinel* group

☐ **Magnesioclinoholmquistite**, $Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$, mon, $Mg/(Mg + Fe^{2+}) = 0.9–1.0$, dimorph. with **Magnesioholmquistite**, forms a series with **Clinoholmquistite** and **Ferroclinoholmquistite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesiocopiapite**, $MgFe^{3+}_4(SO_4)_6(OH)_2·20H_2O$, tric., yellow, *Copiapite* group, **24**, 182 (1939)

☐ **Magnesiocummingtonite**, $(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.7–1.0$, forms a series with **Cummingtonite** and **Grunerite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesioferrikatophorite**, $Na_2Ca(Mg,Fe^{2+})_4Fe^{3+}(Si_7Al)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesioferrite**, $MgFe^{3+}_2O_4$, cub., forms a series with **Magnetite**, *Spinel* group

☐ **Magnesiogedrite**, $(Mg,Fe^{2+})_5Al_2(Si_6Al_2)O_{22}(OH)_2$, orth., Mg/(Mg + Fe^{2+}) = 0.9–1.0, forms a series with **Gedrite** and **Ferrogedrite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesiohastingsite**, $NaCa_2(Mg,Fe^{2+})_4Fe^{3+}Si_6Al_2O_{22}(OH)_2$, mon., Mg/(Mg + Fe^{2+}) = 0.7–1.0, forms a series with **Hastingsite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesioholmquistite**, $Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$, orth., Mg/(Mg + Fe^{2+}) = 0.9–1.0, dimorph. with **Magnesioclinoholmquistite**, forms a series with **Holmquistite** and **Ferroholmquistite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesiohornblende**, $Ca_2(Mg,Fe^{2+})_4Al(Si_7Al)O_{22}(OH,F)_2$, mon, Mg/(Mg + Fe^{2+}) = 0.5–1.0, forms a series with **Ferrohornblende**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesiohulsite**, $(Mg,Fe^{2+})_2(Fe^{3+},Sn^{4+},Mg)BO_5$, mon., black, compare **Hulsite**, **73**, 929 (1988)

Magnesiokatophorite, see **Magnesio-aluminokatophorite**, **Magnesioferrikatophorite**

☐ **Magnesioriebeckite**, $Na_2(Mg,Fe^{2+})_3Fe_2^{3+}Si_8O_{22}(OH)_2$, mon., Mg/(Mg + Fe^{2+}) = 0.5–1.0, $Fe^{3+}/(Fe^{3+}$ + Al) = 0.7–1.0, forms a series with **Riebeckite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesiosadanagaite**, $(K,Na)Ca_2(Mg,Fe^{2+},Al,Fe^{3+},Ti)_5(Si,Al)_8O_{22}(OH)_2$, mon., dark brown to black, forms a series with **Sadanagaite**, *Amphibole* group, **69**, 465–471 (1984)

☐ **Magnesiotaramite**, $Na_2Ca(Mg,Fe^{2+})_3Al_2(Si_6Al_2)O_{22}(OH)_2$, mon, Mg/(Mg + Fe^{2+}) = 0.5–1.0, forms a series with **Taramite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Magnesite**, $MgCO_3$, trig., forms two series, with **Gaspeite**, and with **Siderite**, *Calcite* group

☐ **Magnesium astrophyllite**, $(Na,K)_4Mg_2(Fe^{2+},Fe^{3+},Mn)_5Ti_2Si_8O_{24}$-$(O,OH,F)_7$, mon., yellow. *Astrophyllite* group, **60**, 737 (1975)

☐ **Magnesium-chlorophoenicite**, $(Mg,Mn)_3Zn_2(AsO_4)(OH,O)_6$, mon., compare **Chlorophoenicite**, **Jarosewichite**, *Can. Min.* **19**, 333–336 (1981)

☐ **Magnesium-zippeite**, $Mg_2(UO_2)_6(SO_4)_3(OH)_{10}\cdot 16H_2O$, orth., yellow, compare **Cobalt-zippeite**, **Nickel-zippeite**, **Zinc-zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Magnetite**, $Fe^{2+}Fe^{3+}_2O_4$, cub., forms two series, with **Jacobsite**, and with **Magnesioferrite**, *Spinel* group

☐ **Magnetoplumbite**, $Pb(Fe^{3+},Mn^{3+})_{12}O_{19}$, hex., *Magnetoplumbite* group, **36**, 512–514 (1951), **74**, 1181–1194 (1989)

Magnioborite = **Suanite**, **48**, 915–924 (1963)

☐ **Magniotriplite**, $(Mg,Fe^{2+},Mn^{2+})_2(PO_4)F$, mon., yellow, compare **Triplite**, **Zwieselite**, **37**, 359–360 (1952)

☐ **Magnocolumbite**, $(Mg,Fe^{2+},Mn^{2+})(Nb,Ta)_2O_6$, orth., compare **Ferrocolumbite**, **Manganocolumbite**, **48**, 1182 (1963)

☐ **Magnolite**, $Hg^{1+}_2Te^{4+}O_3$, orth., **75**, 437 (1990)

☐ **Magnussonite**, $Mn^{2+}_5As^{3+}_3O_9(OH,Cl)$, cub. and tet., green, **42**, 581 (1957), **64**, 390–401 (1979), **69**, 800–802 (1984)

☐ **Mahlmoodite**, $Fe^{2+}Zr(PO_4)_2\cdot 4H_2O$, mon., creamy white, **78**, 437–440 (1993)

☐ **Majakite** (Mayakite), PdNiAs, hex., **62**, 1260 (1977)

☐ **Majorite**, $Mg_3(Fe,Al,Si)_2(SiO_4)_3$, cub., *Garnet* group, **55**, 1815 (1970)

☐ **Makarochkinite**, $(Ca,Na)_2(Fe^{2+},Fe^{3+},Ti,Mg)_6(Si,Al,Be)_6O_{20}$, tric., *Aenigmatite* group

☐ **Makatite**, $Na_2Si_4O_8(OH)_2\cdot 4H_2O$, mon., **55**, 358–366 (1970), **68**, 852 (1983)

☐ **Mäkinenite**, γ-NiSe, trig., compare **Millerite**, **50**, 519–520 (1965)

☐ **Malachite**, $Cu^{2+}_2(CO_3)(OH)_2$, mon., bright green, compare **Pokrovskite**

Malacon, a var. of **Zircon**

☐ **Malanite**, $Cu(Pt,Ir)_2S_4$, cub., forms a series with **Cuproiridsite**, compare **Cuprorhodsite**, **61**, 185 (1976)

☐ **Malayaite**, $CaSnSiO_5$, mon., compare **Titanite**, **51**, 1551 (1966)

☐ **Maldonite**, Au_2Bi, cub.

☐ **Malladrite**, Na_2SiF_6, trig., **12**, 379 (1927)

☐ **Mallardite**, $Mn^{2+}SO_4 \cdot 7H_2O$, mon., rose-colored, *Melanterite* group

☐ **Mammothite**, $Pb_6Cu^{2+}_4AlSb^{5+}(SO_4)_2Cl_4O_2(OH)_{16}$, mon., bright blue, **71**, 229–230, 1548 (1986)

☐ **Manaksite**, $KNaMn^{2+}Si_4O_{10}$, tric., colorless to cream to light rose, compare **Fenaksite**, **78**, 1315 (1993)

☐ **Manandonite**, $LiAl_3(SiAl_{0.5}B_{0.5})O_5(OH)_4$, orth., *Kaolinite-Serpentine* group, *Eur. J. Min.* **1**, 633–638 (1988)

☐ **Manasseite**, $Mg_6Al_2(CO_3)(OH)_{16} \cdot 4H_2O$, hex., dimorph. with **Hydrotalcite**, *Manasseite* group, **26**, 295–315 (1941)

☐ **Mandarinoite**, $Fe^{3+}_2Se_3O_9 \cdot 6H_2O$, mon., yellow-green, **65**, 206 (1980)

☐ **Manganarsite**, $Mn^{2+}_3As^{3+}_2O_4(OH)_4$, trig. (?), light pinkish-brown, **71**, 1517–1521 (1986)

☐ **Manganaxinite**, $Ca_2Mn^{2+}Al_2BSi_4O_{15}(OH)$, tric., forms two series, with **Ferroaxinite**, and with **Tinzenite**, *Axinite* group

☐ **Manganbabingtonite**, $Ca_2(Mn^{2+},Fe^{2+})Fe^{3+}Si_5O_{14}(OH)$, tric., forms a series with **Babingtonite**, **53**, 1064–1065 (1968)

☐ **Manganbelyankinite**, $(Mn^{2+},Ca)(Ti,Nb)_5O_{12} \cdot 9H_2O$, amor., forms two series, with **Belyankinite**, and with **Gerasimovskite**, **43**, 1220 (1958)

☐ **Manganberzeliite**, $(Ca,Na)_3(Mn^{2+},Mg)_2(AsO_4)_3$, cub., yellow to orange, forms a series with **Berzeliite**, structurally related to **Palenzonaite** and to the silicates of the *Garnet* group

☐ **Manganese-hörnesite**, $(Mn^{2+},Mg)_3(AsO_4)_2 \cdot 8H_2O$, mon., related to **Bobierrite** and the *Vivianite* group, **39**, 159 (1954)

☐ **Manganese-shadlunite**, $(Mn,Pb,Cd)(Cu,Fe)_8S_8$, cub., *Pentlandite* group, **58**, 1114 (1973)

☐ **Mangangordonite**, $(Mn^{2+},Fe^{2+})Al_2(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., colorless to yellow, compare **Gordonite**

☐ **Manganhumite**, $(Mn^{2+},Mg)_7(SiO_4)_3(OH)_2$, orth., brownish-orange, *Humite* group, **64**, 243 (1979)

☐ **Manganite**, $Mn^{3+}O(OH)$, mon., trimorph. with **Feitknechtite** and **Groutite**

☐ **Mangan-neptunite**, $KNa_2Li(Mn^{2+},Fe^{2+})_2Ti_2Si_8O_{24}$, mon., red, forms a series with **Neptunite**, **12**, 96 (1927)

☐ **Manganochromite**, $(Mn^{2+},Fe^{2+})(Cr^{3+},V^{3+})_2O_4$, cub., forms a series with **Vuorelainenite**, *Spinel* group, **63**, 1166–1174 (1978)

☐ **Manganocolumbite**, $(Mn^{2+},Fe^{2+})(Nb,Ta)_2O_6$, orth., forms two series, with **Manganotantalite**, and with **Ferrocolumbite**, compare **Magnocolumbite**

☐ **Manganolangbeinite**, $K_2Mn_2^{2+}(SO_4)_3$, cub., pale rose-red, compare **Efremovite** and **Langbeinite**, **11**, 107 (1926)

Manganophyllite = manganoan **Biotite**

☐ **Manganosegelerite**, $(Mn^{2+},Ca)(Mn^{2+},Fe^{2+},Mg)Fe^{3+}(PO_4)_2(OH)\cdot 4H_2O$, orth., yellow to yellow-green, *Overite* group, **79**, 185–186 (1994)

☐ **Manganosite**, $Mn^{2+}O$, cub., emerald-green, *Periclase* group

☐ **Manganostibite**, $(Mn^{2+},Fe^{2+})_7Sb^{5+}As^{5+}O_{12}$, orth., black, **55**, 1489–1499 (1970), **73**, 667 (1988)

☐ **Manganotantalite**, $Mn^{2+}Ta_2O_6$, orth., dimorph. with **Manganotapiolite**, forms two series, with **Manganocolumbite**, and with **Ferrotantalite**

☐ **Manganotapiolite**, $(Mn^{2+},Fe^{2+})(Ta,Nb)_2O_6$, tet., dimorph. with **Manganotantalite**, forms a series with **Ferrotapiolite**, *Ferrotapiolite* group

☐ **Manganotychite**, $Na_6Mn_2^{2+}(SO_4)(CO_3)_4$, cub., pale rose to green, compare **Tychite**

☐ **Manganpyrosmalite**, $(Mn^{2+},Fe^{2+})_8Si_6O_{15}(OH,Cl)_{10}$, hex., forms a series with **Ferropyrosmalite**, dimorph. with **Brokenhillite**, **38**, 755–760 (1953)

☐ **Manjiroite**, $(Na,K)(Mn^{4+},Mn^{2+})_8O_{16}\cdot nH_2O$, tet., *Cryptomelane* group, **53**, 2103 (1968)

☐ **Mannardite**, $Ba(Ti_6V_2^{3+})O_{16}$, tet., compare **Ankangite**, *Cryptomelane* group, **73**, 193 (1988)

☐ **Mansfieldite**, $AlAsO_4\cdot 2H_2O$, orth., forms a series with **Scorodite**, *Variscite* group, **33**, 122–132 (1948)

☐ **Mantienneite**, $KMg_2Al_2Ti(PO_4)_4(OH)_3\cdot 15H_2O$, orth., compare **Paulkerrite**, **70**, 1330 (1985)

☐ **Mapimite**, $Zn_2Fe_3^{3+}(AsO_4)_3(OH)_4\cdot 10H_2O$, mon., blue to green, **67**, 623–624 (1982)

☐ **Marcasite**, FeS_2, orth., dimorph. with **Pyrite**, *Marcasite* group

☐ **Margaritasite**, $(Cs,K,H_3O)_2(UO_2)_2V_2O_8\cdot H_2O$, mon., yellow, compare **Carnotite**, **Tyuyamunite**, **67**, 1273–1289 (1982)

☐ **Margarite**, $CaAl_2(Al_2Si_2)O_{10}(OH)_2$, mon., *Mica* group

☐ **Margarosanite**, $Pb(Ca,Mn^{2+})_2Si_3O_9$, tric.

☐ **Marialite**, $3NaAlSi_3O_8\cdot NaCl$, tet., forms a series with **Meionite**, end-member of the *Scapolite* group

☐ **Maricite**, $NaFe^{2+}PO_4$, orth., **64**, 655–656 (1979)

☐ **Maricopaite**, $Pb_7Ca_2Al_{12}Si_{36}O_{100}\cdot 32H_2O$, orth., *Zeolite* group, **74**, 947 (1989), **79**, 175–184 (1994)

Mariposite = chromian Phengite

Marmatite, (Zn,Fe)S = ferroan **Sphalerite**

☐ **Marokite**, $CaMn_2^{3+}O_4$, orth., **49**, 817 (1964)

☐ **Marrite**, $PbAgAsS_3$, mon., compare **Freieslebenite**, **Laffittite**, **50**, 812 (1965)

☐ **Marshite**, CuI, cub., compare **Miersite**, **Nantokite**

☐ **Marsturite**, $NaCaMn_3^{2+}Si_5O_{14}(OH)$, tric., white to light pink, compare **Lithiomarsturite**, **Nambulite**, **Natronambulite**, **63**, 1187–1189 (1978)

☐ **Marthozite**, $Cu^{2+}(UO_2)_3(Se^{4+}O_3)_3(OH)_2 \cdot 7H_2O$, orth., yellow-green, **55**, 533 (1970)

Martite = **Hematite** pseudomorphous after **Magnetite**

☐ **Mascagnite**, $(NH_4)_2SO_4$, orth., compare **Arcanite**, Taylorite

Maskelynite = glass of **Plagioclase** composition

☐ **Maslovite**, $(Pt,Pd)(Bi,Te)_2$, cub., *Pyrite* group, compare **Michenerite**, **Testibiopalladite**, **65**, 406–407 (1980), **74**, 1171 (1989)

☐ **Massicot**, PbO, orth., yellow, dimorph. with **Litharge**

☐ **Masutomilite**, $K(Li,Al,Mn^{2+})_3(Si,Al)_4O_{10}(F,OH)_2$, mon., purplish-pink, *Mica* group, **62**, 594 (1977)

☐ **Masuyite**, $Pb_3U_8^{6+}O_{27} \cdot 10H_2O$, orth., **33**, 384 (1948)

☐ **Mathewrogersite**, $Pb_7(Fe^{2+},Cu^{2+})Al_3GeSi_{12}O_{36}(OH,H_2O)_6$, trig., white to pale greenish-yellow, **72**, 1025 (1987)

☐ **Mathiasite**, $(K,Ca,Sr)(Ti,Cr,Fe,Mg)_{21}O_{38}$, trig., black, *Crichtonite* group, **68**, 494–505 (1983)

☐ **Matildite**, $AgBiS_2$, hex., compare **Bohdanowiczite**, **Volynskite**

☐ **Matlockite**, PbFCl, tet.

☐ **Matraite**, ZnS, trig., trimorph. with **Sphalerite** and **Wurtzite**, **45**, 1131 (1960)

☐ **Mattagamite**, $CoTe_2$, orth., forms a series with **Frohbergite**, *Marcasite* group, **59**, 382 (1974)

☐ **Matteuccite**, $NaHSO_4 \cdot H_2O$, mon., **39**, 848 (1954)

☐ **Mattheddleite**, $Pb_{20}(SiO_4)_7(SO_4)_4Cl_4$, hex., compare **Chlorellestadite**, **Fluorellestadite**, **Hydroxylellestadite**, isostructural with the minerals of the *Apatite* group, **73**, 927 (1988)

☐ **Matulaite**, $CaAl_{18}(PO_4)_{12}(OH)_{20}\cdot 28H_2O$, mon., **65**, 1067 (1980)

☐ **Maucherite**, $Ni_{11}As_8$, tet., **58**, 203 (1973)

☐ **Maufite**, $(Mg,Ni)Al_4Si_3O_{13}\cdot 4H_2O$ (?), emerald-green, **15**, 275 (1930)

☐ **Mawbyite**, $Pb_2(Fe^{3+},Zn)_4(AsO_4)_4(OH)_3\cdot H_2O$, mon., orange-brown to bright reddish-brown, compare **Tsumcorite**, **74**, 1377–1381 (1989)

☐ **Mawsonite**, $Cu^{1+}_6Fe^{3+}_2Sn^{4+}S_8$, tet., compare **Chatkalite**, **50**, 900–908 (1965)

☐ **Maxwellite**, $NaFe^{3+}(AsO_4)F$, mon., medium to dark red, forms series with **Durangite** and with **Tilasite**, *Neues Jahrb. Mineral., Monatsh.* 1991, 363–384 (Eng.), **77**, 449 (1992)

Mayakite = **Majakite**

☐ **Mayenite**, $Ca_{12}A_{14}O_{33}$, cub., **50**, 2106 (1965)

☐ **Mazzite**, $K_2CaMg_2(Al,Si)_{36}O_{72}\cdot 28H_2O$, hex., *Zeolite* group, **60**, 340 (1975)

☐ **Mbobomkulite**, $(Ni,Cu^{2+})Al_3(NO_3,SO_4)_2(OH)_{12}\cdot 3H_2O$, mon., sky-blue, compare **Chalcoalumite**, **Nickelalumite**, **67**, 415–416 (1982)

Mboziite, a potassian var. of **Taramite**, *Amphibole* group

☐ **Mcallisterite**, $Mg_2B_{12}O_{14}(OH)_{12}\cdot 9H_2O$, trig., dimorph. with **Admontite**, **50**, 629–640 (1965)

☐ **Mcauslanite**, $HFe^{2+}_3Al_2(PO_4)_4F\cdot 18H_2O$, tric., **75**, 707–708 (1990)

☐ **Mcbirneyite**, $Cu^{2+}_3(VO_4)_2$, tric., black, compare **Stranskiite**, **73**, 1495 (1988)

☐ **Mcconnellite**, $Cu^{1+}Cr^{3+}O_2$, trig., deep red, compare **Delafossite**, **62**, 593 (1977)

☐ **Mcgillite**, $(Mn^{2+},Fe^{2+})_8Si_6O_{15}(OH)_8Cl_2$, mon., ps. trig., light to dark pink, compare **Friedelite**, **66**, 1276 (1981)

☐ **Mcgovernite**, $(Mn^{2+},Mg,Zn)_{22}(As^{3+}O_3)(As^{5+}O_4)_3(SiO_4)_3(OH)_{20}$, trig., **63**, 150–159 (1978)

☐ **Mcguinnessite**, $(Mg,Cu^{2+})_2(CO_3)(OH)_2$, mon. or tric., greenish-blue, compare **Pokrovskite**, *Rosasite* group, **66**, 1276 (1981)

Mckelveyite-(Nd), $(Ba,Sr)(Nd,Ce,La)(CO_3)_2 \cdot 4–10H_2O$, tric., yellow-brown, **78**, 237 (1993)

☐ **Mckelveyite-(Y)**, $Ba_3Na(Ca,U)Y(CO_3)_6 \cdot 3H_2O$, tric., ps. trig., green, compare **Donnayite-(Y)**, **Weloganite**, **50**, 593–612 (1965), **64**, 659 (1979)

☐ **Mckinstryite**, $(Ag,Cu)_2S$, orth., **52**, 1253 (1967)

☐ **Mcnearite**, $NaCa_5H_4(AsO_4)_5 \cdot 4H_2O$, tric., **67**, 856 (1982)

☐ **Medaite**, $(Mn^{2+},Ca)_6(V^{5+},As^{5+})Si_5O_{18}(OH)$, mon., brown, **67**, 85–89 (1982)

Meerschaum = **Sepiolite**

☐ **Megacyclite**, $Na_8KSi_9O_{18}(OH)_9 \cdot 19H_2O$, mon.

☐ **Meionite**, $3CaAl_2Si_2O_8 \cdot CaCO_3$, tet., forms a series with **Marialite**, end member of *Scapolite* group

☐ **Meixnerite**, $Mg_6Al_2(OH)_{18} \cdot 4H_2O$, trig., related to the *Hydrotalcite* group, **61**, 176 (1976)

Melanite = titanian **Andradite**

☐ **Melanocerite-(Ce)**, $(Ce,Ca)_5(Si,B)_3O_{12}(OH,F) \cdot nH_2O$ (?), hex.

☐ **Melanophlogite**, SiO_2 containing organic compounds, cub. or tet., ps. cub., **48**, 854–867 (1963), **57**, 779–796 (1972)

☐ **Melanostibite**, $Mn(Sb^{5+},Fe^{3+})O_3$, trig., **53**, 1104–1109, 1779 (1968)

☐ **Melanotekite**, $Pb_2Fe_2^{3+}Si_2O_9$, orth., black, forms a series with **Kentrolite**

☐ **Melanothallite**, $Cu_2^{2+}OCl_2$, orth., black, **68**, 852 (1983)

☐ **Melanovanadite**, $Ca(V_2^{5+}V_2^{4+})O_{10}\cdot 5H_2O$, tric., black, **7**, 163 (1922), **75**, 508–521 (1990)

☐ **Melanterite**, $Fe^{2+}SO_4\cdot 7H_2O$, mon., green, *Melanterite* group

☐ **Melilite**, $(Ca,Na)_2(Al,Mg)(Si,Al)_2O_7$, tet., a mineral of the series **Akermanite-Gehlenite**, *Melilite* group

☐ **Meliphanite**, $(Ca,Na)_2Be(Si,Al)_2(O,OH,F)_7$, tet., related to *Melilite* group

☐ **Melkovite**, $CaFe^{3+}H_6(MoO_4)_4(PO_4)\cdot 6H_2O$, yellow, **55**, 320 (1970)

☐ **Mellite**, $Al_2[C_6(COO)_6]\cdot 16H_2O$, (aluminum mellate), tet., yellow

☐ **Melonite**, $NiTe_2$, trig., reddish-white, forms a series with **Merenskyite**, *Melonite* group

☐ **Melonjosephite**, $CaFe^{2+}Fe^{3+}(PO_4)_2(OH)$, orth., dark green, **60**, 946 (1975)

☐ **Mendipite**, $Pb_3Cl_2O_2$, orth.

☐ **Mendozavilite**, $Na(Ca,Mg)_2Fe_6^{3+}(PO_4)_2(P^{5+}Mo_{11}^{6+}O_{39})(OH,Cl)_{10}\cdot 33H_2O$, mon. or tric., yellow, **73**, 193 (1988)

☐ **Mendozite**, $NaAl(SO_4)_2\cdot 11H_2O$, mon.

☐ **Meneghinite**, $Pb_{13}CuSb_7S_{24}$, orth., *Can. Min.* **16**, 393–395 (1978)

Mengxianminite, $(Ca,Na)_3(Fe^{2+},Mn^{2+})_2Mg_2(Sn^{4+},Zn)_5Al_8O_{29}$, orth., brownish-green

☐ **Mercallite**, $KHSO_4$, orth., blue

☐ **Mercury**, Hg, a liquid, silver-colored

☐ **Merenskyite**, $(Pd,Pt)(Te,Bi)_2$, trig., forms a series with **Melonite**, *Melonite* group, **52**, 926 (1967)

☐ **Merlinoite**, $(K,Ca,Na,Ba)_7Si_{23}Al_9O_{64}\cdot 23H_2O$, orth., *Zeolite* group, **63**, 598 (1978)

☐ **Merrihueite**, $(K,Na)_2(Fe^{2+},Mg)_5Si_{12}O_{30}$, hex., greenish-blue, *Osumilite* group, **50**, 2096 (1965)

Merrillite = **Whitlockite** found in meteorites

☐ **Mertieite-I**, $Pd_{11}(Sb,As)_4$, ps. hex., dimorph. with **Isomertieite**, brass-yellow, **58**, 1–10 (1973)

☐ **Mertieite-II**, $Pd_8(Sb,As)_3$, trig., **61**, 1249–1254 (1976)

☐ **Merwinite**, $Ca_3Mg(SiO_4)_2$, mon., **6**, 143–148 (1921)

☐ **Mesolite**, $Na_2Ca_2Al_6Si_9O_{30}\cdot 8H_2O$, mon., *Zeolite* group

☐ **Messelite**, $Ca_2(Fe^{2+},Mn^{2+})(PO_4)_2\cdot 2H_2O$, tric., *Fairfieldite* group, **44**, 465 (1959)

☐ **Meta-aluminite**, $Al_2(SO_4)(OH)_4\cdot 5H_2O$, mon., **53**, 717–721 (1968)

☐ **Meta-alunogen**, $Al_4(SO_4)_6\cdot 27H_2O$, mon., **28**, 61–62 (1943)

☐ **Meta-ankoleite**, $K_2(UO_2)_2(PO_4)_2\cdot 6H_2O$, tet., yellow, *Meta-autunite* group, **52**, 560 (1967)

☐ **Meta-autunite**, $Ca(UO_2)_2(PO_4)_2\cdot 2–6H_2O$, tet., yellow, *Meta-autunite* group

☐ **Metaborite**, HBO_2, cub., **50**, 261 (1965)

☐ **Metacalciouranoite**, $(Ca,Na,Ba)U_2O_7\cdot 2H_2O$, orange, **58**, 1111 (1973)

☐ **Metacinnabar**, HgS, cub., trimorph. with **Cinnabar** and **Hypercinnabar**, compare **Tiemannite**, *Sphalerite* group

☐ **Metadelrioite**, $CaSrV_2^{5+}O_6(OH)_2$, tric., yellow, **55**, 185–200 (1970)

Metahaiweeite, $Ca(UO_2)_2Si_6O_{15}\cdot nH_2O$, ($n < 5$), **44**, 839–843 (1959)

☐ **Metaheinrichite**, $Ba(UO_2)_2(AsO_4)_2\cdot 8H_2O$, tet., *Meta-autunite* group, **43**, 1134–1143 (1958)

☐ **Metahewettite**, $CaV_6^{5+}O_{16}\cdot 3H_2O$, mon., deep red

☐ **Metahohmannite**, $Fe_2^{3+}(SO_4)_2(OH)_2\cdot 3H_2O$, orange

☐ **Metakahlerite**, $Fe^{2+}(UO_2)_2(AsO_4)_2\cdot 8H_2O$, tet., yellow, *Meta-autunite* group, **45**, 254 (1960)

☐ **Metakirchheimerite**, $Co(UO_2)_2(AsO_4)_2 \cdot 8H_2O$, tet. (?), *Meta-autunite* group, **44**, 466 (1959)

☐ **Metaköttigite**, $(Zn,Fe^{3+},Fe^{2+})_3(AsO_4)_2 \cdot 8(H_2O,OH)$, tric., bluish-gray, compare **Metavivianite**, **Symplesite**, **68**, 1039 (1983)

☐ **Metalodevite**, $Zn(UO_2)_2(AsO_4)_2 \cdot 10H_2O$, tet., yellow, *Meta-autunite* group, **59**, 210–211 (1974)

☐ **Metamunirite**, β-$NaV^{5+}O_3$, orth., **77**, 1116–1117 (1992)

☐ **Metanovacekite**, $Mg(UO_2)_2(AsO_4)_2 \cdot 4–8H_2O$, tet., yellow, *Meta-autunite* group

☐ **Metarossite**, $CaV_2^{5+}O_6 \cdot 2H_2O$, tric., yellow, **13**, 160 (1928)

☐ **Metaschoderite**, $Al_2(PO_4)(VO_4) \cdot 6H_2O$, mon., yellow-orange, **47**, 637–648 (1962)

☐ **Metaschoepite**, $UO_3 \cdot nH_2O$, ($n < 2$), orth., yellow, **45**, 1026–1061 (1960)

☐ **Metasideronatrite**, $Na_2Fe^{3+}(SO_4)_2(OH) \cdot H_2O$, orth., yellow

☐ **Metastibnite**, Sb_2S_3, amor., red, dimorph. with **Stibnite**, **55**, 2103–2104 (1970)

☐ **Metastudtite**, $UO_4 \cdot 2H_2O$, orth., pale yellow, **68**, 456–458 (1983)

☐ **Metaswitzerite**, $Mn_3^{2+}(PO_4)_2 \cdot 4H_2O$, mon., pink to brown, **71**, 1221–1223 (1986)

☐ **Metatorbernite**, $Cu^{2+}(UO_2)_2(PO_4)_2 \cdot 8H_2O$, tet., green, *Meta-autunite* group

☐ **Metatyuyamunite**, $Ca(UO_2)_2V_2^{5+}O_8 \cdot 3H_2O$, orth., yellow, **41**, 187–201 (1956)

☐ **Meta-uranocircite**, $Ba(UO_2)_2(PO_4)_2 \cdot 8H_2O$, mon., yellow, *Meta-autunite* group

☐ **Meta-uranopilite**, $(UO_2)_6(SO_4)(OH)_{10} \cdot 5H_2O$, yellow, **37**, 950–959 (1952)

☐ **Meta-uranospinite**, $Ca(UO_2)_2(AsO_4)_2 \cdot 8H_2O$, tet., yellow, *Meta-autunite* group, **45**, 254 (1960)

☐ **Metavandendriesscheite**, $PbU_7O_{22} \cdot nH_2O$, ($n < 12$), **45**, 1026–1061 (1960)

☐ **Metavanmeersscheite**, $U^{6+}(UO_2)_3(PO_4)_2(OH)_6 \cdot 2H_2O$, orth., yellow, **67**, 1077 (1982)

☐ **Metavanuralite**, $Al(UO_2)_2V_2^{5+}O_8(OH) \cdot 8H_2O$, tric., lemon-yellow, **56**, 637 (1971)

☐ **Metavariscite**, $AlPO_4 \cdot 2H_2O$, mon., pale green, dimorph. with **Variscite**, compare **Kolbeckite**, **Phosphosiderite**, **10**, 23–28 (1925)

☐ **Metavauxite**, $Fe^{2+}Al_2(PO_4)_2(OH)_2 \cdot 8H_2O$, mon., dimorph. with **Paravauxite**

☐ **Metavivianite**, $Fe_{3-x}^{2+}Fe_x^{3+}(PO_4)_2(OH)_x \cdot (8-x)H_2O$, tric., leek-green, compare **Metaköttigite**, **Symplesite**, **59**, 896–899 (1974), **66**, 1103 (1981), **73**, 667 (1988)

☐ **Metavoltine**, $K_2Na_6Fe^{2+}Fe_6^{3+}(SO_4)_{12}O_2 \cdot 18H_2O$, hex.

☐ **Metazellerite**, $Ca(UO_2)(CO_3)_2 \cdot 3H_2O$, orth., lemon-yellow, **51**, 1567–1578 (1966)

☐ **Metazeunerite**, $Cu^{2+}(UO_2)_2(AsO_4)_2 \cdot 8H_2O$, tet., green, *Meta-autunite* group, **42**, 222–230 (1957)

☐ **Meyerhofferite**, $Ca_2B_6O_6(OH)_{10} \cdot 2H_2O$, tric.

☐ **Meymacite**, $WO_3 \cdot 2H_2O$, amor., yellow, **53**, 1065 (1968)

☐ **Mgriite**, Cu_3AsSe_3, cub., **68**, 280–281 (1983)

☐ **Miargyrite**, $AgSbS_2$, mon.

Mica, see *Mica* group

☐ **Michenerite**, PdBiTe, cub., *Pyrite* group, compare **Maslovite**, **Testibiopalladite**, **44**, 207 (1959), **48**, 1184 (1963)

☐ **Microcline**, $KAlSi_3O_8$, tric. with ordered Al-Si arrangement, dimorph. with **Orthoclase**, *Feldspar* group

☐ **Microlite**, $(Ca,Na)_2Ta_2O_6(O,OH,F)$, cub., forms a series with **Pyrochlore**, *Pyrochlore* group

☐ **Microsommite**, $(Na,Ca,K)_{7-8}(Si,Al)_{12}O_{24}(Cl,SO_4,CO_3)_{2-3}$, hex., compare **Pitiglianoite**, *Cancrinite* group

☐ **Miersite**, (Ag,Cu)I, cub., canary-yellow, compare **Marshite**, **Nantokite**

☐ **Miharaite**, $PbCu_4FeBiS_6$, orth., **65**, 784–788 (1980)

☐ **Milarite**, $KCa_2AlBe_2Si_{12}O_{30}\cdot 0.5H_2O$, hex., *Osumilite* group

☐ **Millerite**, NiS, trig., compare **Mäkinenite**

☐ **Millisite**, $(Na,K)CaAl_6(PO_4)_4(OH)_9\cdot 3H_2O$, tet., **15**, 307–337 (1930)

☐ **Millosevichite**, $(Al,Fe^{3+})_2(SO_4)_3$, cherry-red, **59**, 1140–1141 (1974)

☐ **Mimetite**, $Pb_5(AsO_4)_3Cl$, hex., dimorph. with **Clinomimetite**, yellow to brown, *Apatite* group, **54**, 993 (1969)

☐ **Minamiite**, $(Na,Ca,K)_2Al_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **67**, 114–119 (1982)

☐ **Minasgeraisite-(Y)**, $CaY_2Be_2Si_2O_{10}$, mon., lavender to purple, *Gadolinite* group, **71**, 603–607 (1986)

☐ **Minasragrite**, $V^{4+}O(SO_4)\cdot 5H_2O$, mon., blue, **58**, 531–534 (1973)

☐ **Mineevite-(Y)**, $Na_{25}Ba(Y,Gd,Dy)_2(CO_3)_{11}(HCO_3)_4(SO_4)_2F_2Cl$, hex., pale green to yellowish green, **79**, 764 (1994)

☐ **Minehillite**, $(K,Na)_{2-3}Ca_{28}Zn_4Al_4Si_{40}O_{112}(OH)_{16}$, hex., compare **Reyerite**, **Truscottite**, **69**, 1150–1155 (1984)

☐ **Minguzzite**, $K_3Fe^{3+}(C_2O_4)_3\cdot 3H_2O$, (an oxalate), mon., yellow-green, **41**, 370 (1956)

☐ **Minium**, $Pb_2^{2+}Pb^{4+}O_4$, tet., red

☐ **Minnesotaite**, $(Fe^{2+},Mg)_3Si_4O_{10}(OH)_2$, mon., greenish-gray, compare **Talc, Willemseite**, **29**, 363–372 (1944)

☐ **Minrecordite**, $CaZn(CO_3)_2$, trig., *Dolomite* group, *Mineral. Rec.* **13**, 131–136 (1982), **68**, 281 (1983)

☐ **Minyulite**, $KAl_2(PO_4)_2(OH,F)\cdot 4H_2O$, orth., **18**, 512 (1933), **62**, 256–262 (1977)

☐ **Mirabilite**, $Na_2SO_4\cdot 10H_2O$, mon.

☐ **Misenite**, $K_2SO_4\cdot 6KHSO_4$ (?), mon.

☐ **Miserite**, $K(Ca,Ce)_6Si_8O_{22}(OH,F)_2$, tric., rose to lilac, **35**, 911–921 (1950)

Mispickel = **Arsenopyrite**

☐ **Mitridatite**, $Ca_2Fe^{3+}_3(PO_4)_3O_2\cdot 3H_2O$, mon., compare **Arseniosiderite**, **Robertsite**, **59**, 48–59 (1974)

☐ **Mitscherlichite**, $K_2Cu^{2+}Cl_4\cdot 2H_2O$, tet., greenish-blue

☐ **Mixite**, $BiCu^{2+}_6(AsO_4)_3(OH)_6\cdot 3H_2O$, hex., green, *Mixite* group

Mizzonite, a member of the *Scapolite* group, intermediate between **Marialite** and **Meionite**

☐ **Moctezumite**, $Pb(UO_2)(TeO_3)_2$, mon., bright orange, **50**, 1158–1163 (1965), **78**, 835–839 (1993)

☐ **Modderite**, (Co,Fe)As, orth. (?), **63**, 600 (1978)

Moganite, SiO_2, mon., **70**, 874 (1985), **78**, 677–678 (1993)

☐ **Mohite**, Cu_2SnS_3, tric., **68**, 281 (1983)

☐ **Mohrite**, $(NH_4)_2Fe^{2+}(SO_4)_2\cdot 6H_2O$, mon., pale green, *Picromerite* group, **50**, 805 (1965)

Mohsite = plumboan **Crichtonite**, **68**, 474 (1983)

☐ **Moissanite** (Carborundum), SiC, including the hexagonal and trigonal polytypes **-5*H***, **-6*H***, **-10*R***, **-15*R***, **-33*R***, **61**, 1054 (1976), **77**, 208 (1992)

☐ **Moluranite**, $H_4U^{4+}(UO_2)_3(MoO_4)_7\cdot 18H_2O$, amor., **45**, 258 (1960)

☐ **Molybdenite**, MoS_2, hex. and trig., polytypes are **- 2*H*** and **-3*R***, dimorph. with **Jordisite**, compare **Drysdallite** and **Tungstenite**, **48**, 1419 (1963)

☐ **Molybdite**, MoO_3, orth., green to yellow, **49**, 1497 (1964)

☐ **Molybdofornacite**, $Pb_2Cu^{2+}[(As,P)O_4][(Mo^{6+},Cr^{6+})O_4](OH)$, mon., light green, compare **Fornacite**, **Vauquelinite**, **69**, 567 (1984)

☐ **Molybdomenite**, $PbSe^{4+}O_3$, mon., compare **Scotlandite**, **50**, 812 (1965)

☐ **Molybdophyllite**, $Pb_2Mg_2Si_2O_7(OH)_2$, trig.

☐ **Molysite**, $Fe^{3+}Cl_3$, hex.

Monazite, see *Monazite* group

☐ **Monazite-(Ce)**, (Ce,La,Nd,Th)PO_4, mon., *Monazite* group

☐ **Monazite-(La)**, (La,Ce,Nd)PO_4, mon., *Monazite* group

☐ **Monazite-(Nd)**, (Nd,La,Ce)PO_4, mon., *Monazite* group, **68**, 849 (1983), **73**, 1495 (1988)

☐ **Moncheite**, (Pt,Pd)(Te,Bi)$_2$, trig., *Melonite* group, **48**, 1181 (1963)

☐ **Monetite**, $CaHPO_4$, tric., compare **Weilite**

☐ **Mongolite**, $Ca_4Nb_6Si_4O_{24}(OH)_{10}\cdot 5–6H_2O$, tet., pale to grayish-blue, **71**, 1279 (1986)

Mongshanite, $(Mg,Cr,Fe^{2+},Ca,K)(Cr^{3+},Fe^{3+})_4(Ti,Zr)O_{12}$, **73**, 441 (1988)

☐ **Monimolite**, $(Pb,Ca)_3Sb_2O_8$ (?), cub.

☐ **Monohydrocalcite**, $CaCO_3\cdot H_2O$, hex., **49**, 1151 (1964)

☐ **Monsmedite**, $H_8K_2Tl_2^{3+}(SO_4)_8\cdot 11H_2O$, cub., dark green, **54**, 1496 (1969)

☐ **Montanite**, $Bi_2Te^{6+}O_6\cdot 2H_2O$

☐ **Montbrayite**, $(Au,Sb)_2Te_3$, tric., **31**, 515–526 (1946), **57**, 146–154 (1972)

Montdorite, $(K,Na)_2(Fe^{2+},Mn^{2+},Mg)_5Si_8O_{20}(F,OH)_4$, mon., *Mica* group, **64**, 1331 (1979)

☐ **Montebrasite**, $LiAl(PO_4)(OH,F)$, tric., forms a series with **Amblygonite**, *Amblygonite* group

☐ **Monteponite**, CdO, cub., *Periclase* group

☐ **Monteregianite-(Y)**, $(Na,K)_6(Y,Ca)_2Si_{16}O_{38}\cdot 10H_2O$, mon., **65**, 207 (1980), **72**, 365–374 (1987)

Montesite, $PbSn_4S_5$ (?), (probably = plumboan **Herzenbergite**), **60**, 163 (1975)

☐ **Montesommaite**, $(K,Na)_9Al_9Si_{23}O_{64}\cdot 10H_2O$, orth., ps. tet., *Zeolite* group, **75**, 1415–1420 (1990)

☐ **Montgomeryite**, $Ca_4MgAl_4(PO_4)_6(OH)_4\cdot 12H_2O$, mon., *Montgomeryite* group, **59**, 843–850 (1974)

☐ **Monticellite**, $CaMgSiO_4$, orth., forms a series with **Kirschsteinite**, compare **Glaucochroite**

☐ **Montmorillonite**, $(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2\cdot nH_2O$, mon., *Smectite* group

☐ **Montroseite**, $(V^{3+},Fe^{3+})O(OH)$, orth., black, **38**, 1235–1241 (1953)

☐ **Montroyalite**, $Sr_4Al_8(CO_3)_3(OH,F)_{26}\cdot 10–11H_2O$, tric. (?), **72**, 1025 (1987)

☐ **Montroydite**, HgO, orth.

☐ **Mooihoekite**, $Cu_9Fe_9S_{16}$, tet., **57**, 689–708 (1972)

☐ **Moolooite**, $Cu^{2+}(C_2O_4)\cdot 0.4H_2O$ (copper oxalate), orth., turquoise-green, **72**, 1025–1026 (1987)

☐ **Mooreite**, $(Mg,Zn,Mn^{2+})_{15}(SO_4)_2(OH)_{26}\cdot 8H_2O$, mon., **54**, 973–975 (1969), **68**, 474 (1983)

Mooreite-delta = **Torreyite**

☐ **Moorhouseite**, $(Co,Ni,Mn^{2+})SO_4\cdot 6H_2O$, mon., pink, *Hexahydrite* group, **50**, 808 (1965)

☐ **Mopungite**, $NaSb^{5+}(OH)_6$, tet., *Stottite* group, *Mineral. Rec.* **16**, 73–74 (1985), **70**, 1330 (1985)

☐ **Moraesite**, $Be_2(PO_4)(OH)\cdot 4H_2O$, mon., compare **Bearsite**, **38**, 1126–1133 (1953)

☐ **Mordenite**, $(Ca,Na_2,K_2)Al_2Si_{10}O_{24}\cdot 7H_2O$, orth., *Zeolite* group

☐ **Moreauite**, $Al_3(UO_2)(PO_4)_3(OH)_2\cdot 13H_2O$, mon., greenish-yellow, **70**, 1330–1331 (1985)

☐ **Morelandite**, $(Ba,Ca,Pb)_5(AsO_4,PO_4)_3Cl$, hex., *Apatite* grouup, **65**, 207 (1980)

☐ **Morenosite**, $NiSO_4\cdot 7H_2O$, orth., green, compare **Epsomite**, **Goslarite**

Morganite = a gem var. of **Beryl**

☐ **Morinite**, $NaCa_2Al_2(PO_4)_2(F,OH)_5\cdot 2H_2O$, mon., **43**, 585–594 (1958)

Morion = smoky **Quartz**

☐ **Morozeviczite**, $(Pb,Fe)_3Ge_{1-x}S_4$, cub., forms a series with **Polkovicite**, **66**, 437–438 (1981)

Mosandrite, an alteration product of **Rinkite**

☐ **Moschelite**, $Hg_2^{1+}I$, mon., citrus-yellow, altering to dark olive-green

☐ **Moschellandsbergite**, Ag_2Hg_3, cub., silver-white, **23**, 761–764 (1938)

☐ **Mosesite**, $Hg_2N(Cl,SO_4,MoO_4,CO_3)\cdot H_2O$, cub., yellow to green, **38**, 1225–1234 (1953)

Mossite = **Tantalite** in part, **Tapiolite** in part, *Min. Mag.* **43**, 553–554 (1979)

☐ **Mottramite**, $PbCu^{2+}(VO_4)(OH)$, orth., green to brown, forms a series with **Descloizite**, *Descloizite* group

☐ **Motukoreaite**, $Na_2Mg_{38}Al_{24}(CO_3)_{13}(SO_4)_8(OH)_{108}\cdot 56H_2O$, hex., **63**, 598–599 (1978), **74**, 1054–1058 (1989)

☐ **Mounanaite**, $PbFe_2^{3+}(VO_4)_2(OH)_2$, tric., brownish-red, **54**, 1738–1739 (1969)

☐ **Mountainite**, $(Ca,Na_2,K_2)_2Si_4O_{10}\cdot 3H_2O$, mon., **43**, 624 (1958)

☐ **Mountkeithite**, $(Mg,Ni)_{11}(Fe^{3+},Cr,Al)_3(OH)_{24}(SO_4,CO_3)_{3.5}\cdot 11H_2O$, hex., pink to white, **67**, 624 (1982)

☐ **Mourite**, $U^{4+}Mo^{6+}_5O_{12}(OH)_{10}$, mon., violet, **47**, 1217 (1962), **56**, 163–173 (1971)

☐ **Moydite-(Y)**, $YB(OH)_4(CO_3)$, orth., yellow, **73**, 193–194 (1988)

☐ **Mozartite**, $CaMn^{3+}(OH)SiO_4$, orth., deep red, compare **Vuagnatite**, **79**, 388 (1994)

☐ **Mpororoite**, $W^{6+}AlO_3(OH)_3 \cdot 2H_2O$, tric. (?), greenish-yellow, **58**, 1112 (1973), *Mineral. Rec.* **12**, 83 (1981), **70**, 1334–1335 (1985)

☐ **Mrazekite**, $Bi_2Cu^{2+}_3(PO_4)_2O_2(OH)_2 \cdot 2H_2O$, mon., blue, **77**, 1306 (1992), *Can. Min.* **32**, 365–372 (1994)

☐ **Mroseite**, $CaTe^{4+}(CO_3)O_2$, orth., **60**, 946 (1975), **61**, 339 (1976)

Muchuanite, probably = altered **Molybdenite**, **67**, 856 (1982)

☐ **Mückeite**, $CuNiBiS_3$, orth., compare **Lapieite**, **75**, 708 (1990)

☐ **Muirite**, $Ba_{10}Ca_2Mn^{2+}TiSi_{10}O_{30}(OH,Cl,F)_{10}$, tet., **50**, 314–340, 1500–1503 (1965)

☐ **Mukhinite**, $Ca_2Al_2V^{3+}(SiO_4)_3(OH)$, mon., *Epidote* group, **55**, 321 (1970)

☐ **Mullite**, $Al_6Si_2O_{13}$, orth., **9**, 211 (1924)

☐ **Mummeite**, $Ag_2CuPbBi_6S_{11}$, mon., compare **Pavonite**, **Cupropavonite**, **78**, 847 (1993)

☐ **Mundite**, $Al(UO_2)_3(PO_4)_2(OH)_3 \cdot 5.5H_2O$, orth., pale yellow, **67**, 624 (1982)

☐ **Mundrabillaite**, $(NH_4)_2Ca(HPO_4)_2 \cdot H_2O$, mon., dimorph. with **Swaknoite**, **69**, 407 (1984)

☐ **Munirite**, $NaV^{5+}O_3 \cdot (2-x)H_2O$, mon., **69**, 812 (1984), **74**, 1404 (1989)

☐ **Murataite**, $(Na,Y)_4(Zn,Fe^{2+})_3(Ti,Nb)_6O_{18}(F,OH)_4$, cub., black, **59**, 172–176 (1974)

☐ **Murdochite**, $PbCu^{2+}_6O_{8-x}(Cl,Br)_{2x}$, $x \leq 0.5$, cub., black, **40**, 905–916 (1955)

☐ **Murmanite**, $Na_2(Ti,Nb)_2Si_2O_9 \cdot nH_2O$, tric., **48**, 1413 (1963)

☐ **Murunskite**, $K_2Cu_3FeS_4$, tet., compare **Bukovite**, **Thalcusite**, **67**, 624 (1982)

☐ **Muscovite**, $KAl_2(Si_3Al)O_{10}(OH,F)_2$, mon., ps. hex., *Mica* group

☐ **Musgravite**, $(Mg,Fe^{2+},Zn)_2Al_6BeO_{12}$, trig., green, compare **Pehrmanite**, **69**, 215 (1984)

☐ **Mushistonite**, $(Cu^{2+},Zn,Fe^{2+})Sn^{4+}(OH)_6$, cub., *Schoenfliesite* group, **70**, 1331 (1985)

☐ **Muskoxite**, $Mg_7Fe_4^{3+}O_{13}\cdot 10H_2O$, trig. (?), reddish-brown, **54**, 684–696 (1969)

☐ **Muthmannite**, (Ag,Au)Te, brass-yellow

☐ **Nabaphite**, $NaBaPO_4 \cdot 9H_2O$. cub., compare **Nastrophite**, **68**, 643–644 (1983)

☐ **Nabokoite**, $Cu_7^{2+}Te^{4+}O_4(SO_4)_5 \cdot KCl$, tet., tab., yellow-brown, forms a series with **Atlasovite**, **73**, 929 (1988)

☐ **Nacaphite**, $Na_2Ca(PO_4)F$, orth., **66**, 218 (1981)

☐ **Nacareniobsite-(Ce)**, $Na_3Ca_3(Ce,La)(Nb,Ti)(Si_2O_7)_2OF_3$, mon., compare **Rinkite**, **75**, 708 (1990)

☐ **Nacrite**, $Al_2Si_2O_5(OH)_4$, mon., polymorph. with **Kaolinite**, **Dickite**, and **Halloysite**, *Kaolinite-Serpentine* group, **15**, 34–39 (1930)

Na-dachiardite, see **Sodium dachiardite**

☐ **Nadorite**, $PbSb^{3+}O_2Cl$, orth., brown to yellow, compare **Perite**

☐ **Nagashimalite**, $Ba_4(V^{3+},Ti)_4Si_8B_2O_{27}Cl(O,OH)_2$, orth., greenish-black, compare **Taramellite**, **Titantaramellite**, **66**, 639 (1981)

☐ **Nagelschmidtite**, $Ca_3(PO_4)_2 \cdot 2(\alpha\text{-}Ca_2SiO_4)$, **63**, 425–426 (1978)

☐ **Nagyagite**, $Pb_5Au(Sb,Bi)Te_2S_6$, orth. (?), compare **Buckhornite**

☐ **Nahcolite**, $NaHCO_3$, mon., **25**, 769–778 (1940)

☐ **Nahpoite**, Na_2HPO_4, mon., **67**, 856–857 (1982)

☐ **Nakauriite**, $Cu_8^{2+}(SO_4)_4(CO_3)(OH)_6 \cdot 48H_2O$, orth., sky-blue, **62**, 594 (1977)

☐ **Na-komarovite**, $(Na,Ca,H)_2Nb_2Si_2O_{10}(OH,F)_2 \cdot H_2O$, orth.

☐ **Nalipoite**, $NaLi_2PO_4$, orth., *Can. Min.* **29**, 565–573 (1991), **77**, 449 (1992)

☐ **Namansilite**, $NaMn^{3+}Si_2O_6$, mon., dark red, *Pyroxene* group, **78**, 1316 (1993)

☐ **Nambulite**, $(Li,Na)Mn_4^{2+}Si_5O_{14}(OH)$, tric., reddish-brown, forms a series with **Natronambulite**, compare **Lithiomarsturite**, **Marsturite**, **58**, 162 (1973)

☐ **Namibite**, $Cu^{1+}Bi_2V^{5+}O_6$, mon., dark green, **67**, 857 (1982)

☐ **Namuwite**, $(Zn,Cu^{2+})_4(SO_4)(OH)_6 \cdot 4H_2O$, hex., pale green, **68**, 281 (1983)

Nanekevite = **Bario-orthojoaquinite**, **70**, 1331 (1985)

☐ **Nanlingite**, $CaMg_4(AsO_4)_2F_4$, trig., reddish-brown, **62**, 1058–1059 (1977)

☐ **Nanpingite**, $Cs(Al,Mg,Fe^{2+},Li)_2(Si,Al)O_{10}(OH,F)_2$, mon., *Mica* group, **75**, 708–709 (1990)

☐ **Nantokite**, CuCl, cub., compare **Marshite**, **Miersite**

☐ **Narsarsukite**, $Na_2(Ti,Fe^{3+})Si_4(O,F)_{11}$, tet., yellow

☐ **Nasinite**, $Na_2B_5O_8(OH) \cdot 2H_2O$, orth., **48**, 709 (1963)

☐ **Nasledovite**, $PbMn_3^{2+}Al_4(CO_3)_4(SO_4)O_5 \cdot 5H_2O$, **44**, 1325 (1959)

☐ **Nasonite**, $Pb_6Ca_4Si_6O_{21}Cl_2$, hex., **56**, 1174–1179 (1971)

☐ **Nastrophite**, $Na(Sr,Ba)(PO_4) \cdot 9H_2O$, cub., compare **Nabaphite**, **67**, 857 (1982)

Nasturan = Pitchblende

☐ **Natalyite**, $Na(V^{3+},Cr^{3+})Si_2O_6$, mon., bright green, *Pyroxene* group, **72**, 223–224 (1987)

☐ **Natanite**, $Fe^{2+}Sn^{4+}(OH)_6$, cub., greenish-brown, *Schoenfliesite* group, **67**, 1077 (1982)

☐ **Natisite**, $Na_2(TiO)SiO_4$, tet., yellow-green, **61**, 339 (1976)

☐ **Natrite**, Na_2CO_3, mon., **68**, 281–282 (1983)

☐ **Natroalunite**, $Na_2Al_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group

☐ **Natroapophyllite**, $NaCa_4Si_8O_{20}F \cdot 8H_2O$, orth., compare **Fluorapophyllite**, **Hydroxyapophyllite**, **66**, 410–423 (1981)

☐ **Natrobistantite**, $(Na,Cs)Bi(Ta,Nb,Sb)_4O_{12}$, cub., bluish- to yellowish-green, *Pyrochlore* group, compare **Cesstibtantite**, **69**, 407–408 (1984)

☐ **Natrochalcite**, $NaCu_2^{2+}(SO_4)_2(OH)\cdot H_2O$, mon., emerald-green

☐ **Natrodufrenite**, $Na(Fe^{3+},Fe^{2+})(Fe^{3+},Al)_5(PO_3)_4(OH)_6\cdot 2H_2O$, mon., bronze-green, compare **Dufrenite**, **Burangaite**, **68**, 1039 (1983)

☐ **Natrofairchildite**, $Na_2Ca(CO_3)_2$, orth., (perhaps = **Nyerereite**), **60**, 487 (1975)

☐ **Natrojarosite**, $Na_2Fe_6^{3+}(SO_4)_4(OH)_{12}$, trig., *Alunite* group

☐ **Natrolite**, $Na_2Al_2Si_3O_{10}\cdot 2H_2O$, orth., dimorph. with **Tetranatrolite**, *Zeolite* group

☐ **Natromontebrasite**, $(Na,Li)Al(PO_4)(OH,F)$, tric., *Amblygonite* group

☐ **Natron**, $Na_2CO_3\cdot 10H_2O$, mon.

☐ **Natronambulite**, $(Na,Li)Mn_4^{2+}Si_5O_{14}(OH)$, tric., pinkish-orange, forms a series with **Nambulite**, compare **Lithiomarsturite** and **Marsturite**, **58**, 162 (1973), **72**, 223–224 (1987)

☐ **Natroniobite**, $NaNbO_3$, mon., dimorph. with **Lueshite**, **47**, 1483 (1962)

☐ **Natrophilite**, $NaMn^{2+}PO_4$, orth., deep yellow

☐ **Natrophosphate**, $Na_7(PO_4)_2F\cdot 19H_2O$, cub., **58**, 139 (1973), **66**, 879, 1281 (1981)

☐ **Natrosilite**, $Na_2Si_2O_5$, mon., **61**, 339–340 (1976)

☐ **Natrotantite**, $NaTa_3O_8$, mon., **67**, 413 (1982)

☐ **Naujakasite**, $Na_6(Fe^{2+},Mn^{2+})Al_4Si_8O_{26}$, mon., **53**, 1780 (1968)

☐ **Naumannite**, Ag_2Se, orth., ps. cub.

☐ **Navajoite**, $(V^{5+},Fe^{3+})_{10}O_{24}\cdot 12H_2O$, mon., dark brown, **40**, 207–212 (1955), **75**, 508–521 (1990)

☐ **Nealite**, $Pb_4Fe^{2+}(AsO_3)_2Cl_4 \cdot 2H_2O$, tric., orange, *Mineral. Rec.* **11**, 299–301 (1980), **79**, 391 (1994)

☐ **Nefedovite**, $Na_8Ca_4(PO_4)_4F$, tet. or tric., ps. tet., **69**, 812–813 (1984)

☐ **Neighborite**, $NaMgF_3$, orth., **46**, 387–393 (1961)

☐ **Nekoite**, $Ca_3Si_6O_{15} \cdot 7H_2O$, tric., **40**, 933 (1955), **65**, 1270–1276 (1980)

☐ **Nekrasovite**, $Cu_{26}V_2(Sn,As,Sb)_6S_{32}$, cub., *Colusite* group, **70**, 437 (1985)

☐ **Nelenite** (Ferroschallerite), $(Mn^{2+},Fe^{2+})_{16}Si_{12}As^{3+}_3O_{36}(OH)_{17}$, mon., brown, dimorph. with **Schallerite**, **70**, 874–875 (1985)

☐ **Neltnerite**, $CaMn^{3+}_6SiO_{12}$, tet., compare **Abswurmbachite** and **Braunite**, **68**, 282 (1983)

☐ **Nenadkevichite**, $(Na,Ca,K)(Nb,Ti)Si_2O_6(O,OH) \cdot 2H_2O$, orth., **40**, 1154 (1955)

☐ **Neotocite**, $(Mn^{2+},Fe^{2+})SiO_3 \cdot H_2O$ (?)

☐ **Nepheline**, $(Na,K)AlSiO_4$, hex., compare **Yoshiokaite**

Nephrite, a var. of **Actinolite**

☐ **Nepouite**, $Ni_3Si_2O_5(OH)_4$, mon., green, forms a series with **Lizardite**, dimorph. with **Pecoraite**, *Kaolinite-Serpentine* group, **60**, 863–871 (1975)

☐ **Neptunite**, $KNa_2Li(Fe^{2+},Mn^{2+})_2Ti_2Si_8O_{24}$, mon., reddish-black, forms a series with **Mangan-neptunite**, **57**, 85–102 (1972), **78**, 237 (1993)

☐ **Nesquehonite**, $Mg(HCO_3)(OH) \cdot 2H_2O$, mon.

☐ **Nevskite**, Bi(Se,S), trig., compare **Platynite**, **70**, 875 (1985)

Nevyanskite = **Iridosmine**

☐ **Newberyite**, $MgHPO_4 \cdot 3H_2O$, orth.

☐ **Neyite**, $Pb_7(Cu,Ag)_2Bi_6S_{17}$, mon., **55**, 1444 (1970)

☐ **Niahite**, $(NH_4)(Mn^{2+},Mg,Ca)PO_4 \cdot H_2O$, orth., pale orange, **69**, 408 (1984)

Niccolite = **Nickeline**

☐ **Nichromite**, $(Ni,Co,Fe^{2+})(Cr^{3+},Fe^{3+},Al)_2O_4$, cub., *Spinel* group, **65**, 811 (1980)

☐ **Nickel**, Ni, cub., **53**, 348 (1968)

☐ **Nickelalumite**, $(Ni,Cu^{2+})Al_4[(SO_4),(NO_3)_2](OH)_{12}\cdot 3H_2O$, mon., blue, compare **Chalcolalumite**, **Mbobomkulite**, **67**, 415–416 (1982)

☐ **Nickelaustinite**, $Ca(Ni,Zn)(AsO_4)(OH)$, orth., yellow-green to grass-green, *Adelite* group, **73**, 936 (1988)

☐ **Nickelbischofite**, $NiCl_2\cdot 6H_2O$, mon., emerald-green, compare **Bischofite**, **65**, 207–208 (1980)

☐ **Nickelblödite**, $Na_2(Ni,Mg)(SO_4)_2\cdot 4H_2O$, mon., light green, compare **Blödite**, **62**, 1059 (1977)

☐ **Nickel-boussingaultite**, $(NH_4)_2(Ni,Mg)(SO_4)_2\cdot 6H_2O$, mon., yellow-green, *Picromerite* group

☐ **Nickelhexahydrite**, $(Ni,Mg,Fe^{2+})(SO_4)\cdot 6H_2O$, mon., dimorph. with **Retgersite**, blue-green, *Hexahydrite* group, **51**, 529–530 (1966)

☐ **Nickeline (Niccolite)**, NiAs, hex., pale copper-red, *Nickeline* group

Nickel-iron, (Fe,Ni), see **Kamacite**, **Taenite**, **Tetrataenite**

Nickel-kerolite, a var. of **Willemseite**, with randomly stacked structure, forms a series with Kerolite, **63**, 795–796 (1978)

☐ **Nickel-skutterudite**, $(Ni,Co)As_{2-3}$, cub., forms a series with **Skutterudite**, **28**, 63 (1943)

☐ **Nickel-zippeite**, $Ni_2(UO_2)_6(SO_4)_3(OH)_{10}\cdot 16H_2O$, orth., yellow, compare **Cobalt-zippeite**, **Magnesium-zippeite**, **Zinc-zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Nickenichite**, $Na_{0.8}Ca_{0.4}Cu_{0.4}(Mg,Fe^{3+})_3(AsO_4)_3$, mon., bright blue, compare **Johillerite** and **O'danielite**, **79**, 571 (1994)

☐ **Nifontovite**, $Ca_3B_6O_6(OH)_{12}\cdot 2H_2O$, mon., **47**, 172 (1962)

☐ **Nigerite**, $(Zn,Mg,Fe^{2+})(Sn,Zn)_2(Al,Fe^{3+})_{12}O_{22}(OH)_2$, trig. and hex. polytypes, **33**, 98 (1948), **52**, 864–866 (1967)

☐ **Niggliite**, PtSn, hex., *Nickeline* group, **56**, 360–361 (1971)

☐ **Nimite**, $(Ni,Mg,Fe^{2+})_5Al(Si,Al)O_{10}(OH)_8$, mon., yellow-green, *Chlorite* group, **54**, 1739 (1969), **55**, 18–30 (1970)

☐ **Ningyoite**, $(U,Ca,Ce)_2(PO_4)_2\cdot 1\text{–}2H_2O$, orth., ps. hex., *Rhabdophane* group, **44**, 633–650 (1959)

☐ **Niningerite**, $(Mg,Fe^{2+},Mn)S$, cub., compare **Alabandite**, **52**, 925 (1967)

☐ **Niobo-aeschynite-(Ce)**, $(Ce,Ca,Th)(Nb,Ti)_2(O,OH)_6$, orth., forms a series with **Aeschynite-(Ce)**, **47**, 417 (1962)

☐ **Niobo-aeschynite-(Nd)**, $(Nd,Ce)(Nb,Ti)_2(O,OH)_6$, orth.

☐ **Niobophyllite**, $(K,Na)_3(Fe^{2+},Mn^{2+})_6(Nb,Ti)_2Si_8(O,OH,F)_{31}$, tric., brown, *Astrophyllite* group, **50**, 263 (1965)

Niobozirconolite = niobian **Zirkelite**, **46**, 465 (1961)

☐ **Niocalite**, $Ca_{14}Nb_2(Si_2O_7)_4O_6F_2$, mon., lemon-yellow, **41**, 785–786 (1956)

☐ **Nisbite**, $NiSb_2$, orth., *Löllingite* group, **56**, 631–632 (1971)

☐ **Nissonite**, $Cu_2Mg_2(PO_4)_2(OH)_2\cdot 5H_2O$, mon., bluish-green, **52**, 927 (1967)

☐ **Niter**, KNO_3, orth.

☐ **Nitratine** (Soda Niter), $NaNO_3$, trig.

☐ **Nitrobarite**, $Ba(NO_3)_2$, cub.

☐ **Nitrocalcite**, $Ca(NO_3)_2\cdot 4H_2O$, mon.

☐ **Nitromagnesite**, $Mg(NO_3)_2\cdot 6H_2O$, mon.

☐ **Nobleite**, $CaB_6O_9(OH)_2\cdot 3H_2O$, mon., **46**, 560–571 (1961)

☐ **Nolanite**, $(V^{3+},Fe^{2+},Fe^{3+},Ti)_{10}O_{14}(OH)_2$, hex., black, **42**, 619–628 (1957), **52**, 734–743 (1967), **68**, 833–839 (1983)

☐ **Nontronite**, $Na_{0.3}Fe_2^{3+}(Si,Al)_4O_{10}(OH)_2 \cdot nH_2O$, mon., green, *Smectite* group

☐ **Norbergite**, $Mg_3(SiO_4)(F,OH)_2$, orth., *Humite* group

☐ **Nordenskiöldine**, $CaSn^{4+}B_2O_6$, trig., yellow, isostructural with **Tusionite** and with the carbonates of the *Dolomite* group

☐ **Nordite-(Ce)**, $(Ce,La)(Sr,Ca)Na_2(Na,Mn)(Zn,Mg)Si_6O_{17}$, orth.

☐ **Nordite-(La)**, $(La,Ce)(Sr,Ca)Na_2(Na,Mn)(Zn,Mg)Si_6O_{17}$, orth., **28**, 282 (1943), **55**, 1167–1181 (1970)

☐ **Nordstrandite**, $Al(OH)_3$, tric., polymorph. with **Bayerite**, **Doyleite**, and **Gibbsite**, **48**, 214 (1963)

☐ **Nordströmite**, $Pb_3CuBi_7(S_{10}Se_4)$, mon., **65**, 789–796 (1980)

☐ **Norrishite**, $KLiMn_2^{3+}Si_4O_{12}$, mon., black, *Mica* group, **74**, 1360–1367 (1989), **76**, 255–271 (1991)

☐ **Norsethite**, $BaMg(CO_3)_2$, trig., *Dolomite* group, **46**, 420–429 (1961)

☐ **Northupite**, $Na_3Mg(CO_3)_2Cl$, cub., compare **Ferrotychite**, **Tychite**

☐ **Nosean** (Noselite), $Na_8Al_6Si_6O_{24}(SO_4) \cdot H_2O$, cub., *Sodalite* group

☐ **Novacekite**, $Mg(UO_2)_2(AsO_4)_2 \cdot 12H_2O$, tet., yellow, *Autunite* group, **36**, 680–686 (1951)

☐ **Novakite**, $(Cu,Ag)_{21}As_{10}$, mon., ps. tet., **46**, 885–891 (1961)

☐ **Nowackiite**, $Cu_6Zn_3As_4S_{12}$, trig., compare **Aktashite** and **Gruzdevite**, **51**, 532 (1966), **54**, 1497–1498 (1969)

☐ **Nsutite**, (γ-MnO_2), $Mn_x^{2+}Mn_{1-x}^{4+}O_{2-2x}(OH)_{2x}$, (x is small), hex., compare **Akhtenskite**, **Pyrolusite**, **Ramsdellite**, **Vernadite**, **47**, 246–266 (1962)

☐ **Nuffieldite**, $Pb_2Cu(Pb,Bi)Bi_2S_7$, orth., **57**, 319 (1972), **59**, 633 (1974)

☐ **Nukundamite**, $(Cu,Fe)_3S_4$, hex., copper-colored, compare **Idaite**, **65**, 407 (1980)

☐ **Nullaginite**, $Ni_2(CO_3)(OH)_2$, mon., bright green, *Rosasite* group, **67**, 857–858 (1982)

☐ **Nyboite**, $NaNa_2Mg_3Al_2(Si_7Al)O_{22}(OH)_2$, mon., *Amphibole* group, **67**, 858 (1982)

☐ **Nyerereite**, $Na_2Ca(CO_3)_2$, orth., ps. hex., dimorph. with **Zemkorite**, **60**, 487–488 (1975), **63**, 600 (1978)

☐ **Oboyerite**, $Pb_6H_6(Te^{4+}O_3)_3(Te^{6+}O_6)_2 \cdot 2H_2O$, tric., **65**, 809 (1980), **66**, 220 (1981)

☐ **Obradovicite**, $H_4(K,Na)Cu^{2+}Fe_2^{3+}(AsO_4)(MoO_4)_5 \cdot 12H_2O$, orth., pea-green, **72**, 1026 (1987)

Octahedrite = **Anatase**

☐ **O'danielite**, $Na(Zn,Mg)_3H_2(AsO_4)_3$, mon., pale violet, compare **Johillerite**, **66**, 218–219, 1276 (1981)

☐ **Odinite**, $(Fe^{3+},Mg,Al,Fe^{2+})_{2.5}(Si,Al)_2O_5(OH)_4$, mon. and trig., green, *Kaolinite-Serpentine* group

☐ **Offretite**, $(K_2,Ca)_5Al_{10}Si_{26}O_{72} \cdot 30H_2O$, hex., *Zeolite* group, **52**, 1589 (1967), **61**, 853–863 (1976)

☐ **Ogdensburgite**, $Ca_2(Zn,Mn^{2+})Fe_4^{3+}(AsO_4)_4(OH)_6 \cdot 6H_2O$, orth., ps. hex., **72**, 409–412 (1987)

☐ **Ohmilite**, $Sr_3(Ti,Fe^{3+})(Si_2O_6)_2(O,OH) \cdot 2\text{–}3H_2O$, mon., pink, **68**, 811–817 (1983)

☐ **Ojuelaite**, $ZnFe_2^{3+}(AsO_4)_2(OH)_2 \cdot 4H_2O$, mon., chartreuse, *Arthurite* group, **67**, 624 (1982)

☐ **Okanoganite-(Y)**, $(Na,Ca)_3(Y,Ce)_{12}Si_6B_2O_{27}F_{14}$, trig., **65**, 1138–1142 (1980)

☐ **Okenite**, $Ca_{10}Si_{18}O_{46} \cdot 18H_2O$, tric., **68**, 614–622 (1983)

☐ **Okhotskite**, $Ca_2(Mn^{2+},Mg)(Mn^{3+},Al,Fe^{3+})_2Si_3O_{10}(OH)_4$, mon., deep orange, *Pumpellyite* group, **73**, 1495–1496 (1988)

☐ **Oldhamite**, (Ca,Mn)S, cub.

☐ **Olekminskite**, $Sr(Sr,Ca,Ba)(CO_3)_2$, trig., forms a series with **Paralstonite**, **78**, 451 (1993)

☐ **Olenite**, $NaAl_3Al_6(BO_3)_3Si_6O_{18}(O,OH)_4$, trig., *Tourmaline* group, **73**, 441 (1988)

☐ **Olgite**, $Na(Sr,Ba)PO_4$, hex., blue to bluish-green, **66**, 438 (1981)

Oligoclase, see **Plagioclase**, *Feldspar* group

Oligonite = manganoan **Siderite**, $(Fe^{2+},Mn)CO_3$

☐ **Olivenite**, $Cu_2^{2+}(AsO_4)(OH)$, orth., green, forms a series with **Adamite**, compare **Libethenite**

Olivine, (a) the series **Fayalite-Forsterite**, (b) the *Olivine* group

☐ **Olmsteadite**, $KFe_2^{2+}(Nb,Ta)(PO_4)_2O_2 \cdot 2H_2O$, orth., deep brown to black, compare **Johnwalkite**, **61**, 5–11 (1976)

☐ **Olsacherite**, $Pb_2(SeO_4)(SO_4)$, orth., **54**, 1519–1527 (1969)

☐ **Olshanskyite**, $Ca_3B_4(OH)_{18}$, mon. (?), **54**, 1737 (1969)

☐ **Olympite**, Na_3PO_4, orth., **66**, 438 (1981)

☐ **Omeiite**, $(Os,Ru)As_2$, orth., forms a series with **Anduoite**, **64**, 464 (1979)

☐ **Omphacite**, a clinopyroxene, a solid solution of **Aegirine** (Aeg), **Jadeite** (Jd), and **Augite** (Aug), with the composition range $Jd_{25-75}Aug_{25-75}Aeg_{0-25}$, *Pyroxene* group

☐ **Onoratoite**, $Sb_8O_{11}Cl_2$, mon., **54**, 1219 (1969)

☐ **Oosterboschite**, $(Pd,Cu)_7Se_5$, orth., **57**, 1553 (1972)

☐ **Opal**, $SiO_2 \cdot nH_2O$, amor.

☐ **Orcelite**, $Ni_{5-x}As_2$, hex., rose-bronze, **45**, 753–754 (1960)

☐ **Ordonezite**, $ZnSb_2^{5+}O_6$, tet., *Ferrotapiolite* group, **40**, 64–69 (1955)

☐ **Örebroite**, $Mn_3^{2+}(Sb^{5+},Fe^{3+})Si(O,OH)_7$, hex., dark brown, compare **Franciscanite**, **Welinite**, **71**, 1522–1526 (1986)

☐ **Oregonite**, Ni_2FeAs_2, hex., **45**, 1130 (1960)

☐ **Orickite**, near $2CuFeS_2 \cdot H_2O$, hex., brass-yellow, **68**, 245–254 (1983)

☐ **Orientite**, $Ca_2Mn^{2+}Mn^{3+}_2Si_3O_{10}(OH)_4$, orth., light brown, compare **Macfallite**, **70**, 171–181 (1985)

☐ **Orlymanite**, $Ca_4Mn^{2+}_3Si_8O_{20}(OH)_6 \cdot 2H_2O$, hex., dark brown, compare **Gyrolite**, **75**, 923–927 (1990)

☐ **Orpheite**, $H_6Pb_{10}Al_{20}(PO_4)_{12}(SO_4)_5(OH)_{40} \cdot 11H_2O$ (?), trig., pale green to bluish, **61**, 176 (1976)

☐ **Orpiment**, As_2S_3, mon., yellow, compare **Laphamite**

☐ **Orschallite**, $Ca_3(SO_3)_2(SO_4) \cdot 12H_2O$, trig., **79**, 572 (1994)

Orthite = **Allanite-(Ce)**

☐ **Orthobrannerite**, $U^{4+}U^{6+}Ti_3O_{12}(OH)_2$, orth., metamict, black, dimorph. with **Brannerite** (?), **64**, 656 (1979)

☐ **Orthochamosite**, $(Fe^{2+},Mg,Fe^{3+})_5Al(Si_3Al)O_{10}(OH,O)_8$, orth., dimorph. with **Chamosite**, *Chlorite* group

☐ **Orthochrysotile**, $Mg_3Si_2O_5(OH)_4$, orth., polymorph. with **Antigorite**, **Clinochrysotile**, **Lizardite**, and **Parachrysotile**, *Kaolinite-Serpentine* group

☐ **Orthoclase**, $KAlSi_3O_8$, mon. with partially ordered Al-Si arrangement, dimorph. with **Microcline**, forms a series with **Celsian** and **Hyalophane**, *Feldspar* group

☐ **Orthoericssonite**, $BaMn^{2+}_2Fe^{3+}OSi_2O_7(OH)$, orth., brownish-black, dimorph. with **Ericssonite**, **56**, 2157 (1971)

Orthoferrosilite = **Ferrosilite**

☐ **Orthojoaquinite-(Ce)**, $Ba_2NaCe_2Fe^{2+}Ti_2Si_8O_{26}(O,OH) \cdot H_2O$, orth., dimorph. with **Joaquinite**, *Joaquinite* group, **67**, 809–816 (1982)

☐ **Orthopinakiolite**, $(Mg,Mn^{2+})_2Mn^{3+}BO_5$, orth., polymorph. with **Fredrikssonite**, **Pinakiolite**, and **Takeuchiite**, compare **Blatterite**, **46**, 768 (1961)

Orthose = **Orthoclase**

☐ **Orthoserpierite**, $Ca(Cu^{2+},Zn)_3(SO_4)_2(OH)_6 \cdot 3H_2O$, orth., sky-blue, dimorph. with **Serpierite**, **72**, 1026 (1987)

☐ **Osarizawaite**, $Pb_2Cu^{2+}_2Al_4(SO_4)_4(OH)_{12}$, trig., greenish-yellow, *Alunite* group, **47**, 1216 (1962)

☐ **Osarsite**, (Os,Ru)AsS, mon., *Arsenopyrite* group, **57**, 1029–1036 (1972)

☐ **Osbornite**, TiN, cub., golden-yellow

Osmiridium = **Iridium**, *Can. Min.* **29**, 231–237 (1991)

☐ **Osmium**, (Os,Ir,Ru) with Os dominant, hex., *Can. Min.* **29**, 231–237 (1991)

☐ **Osumilite**, $(K,Na)(Fe^{2+},Mg)_2(Al,Fe^{3+})_3(Si,Al)_{12}O_{30}$, hex., *Osumilite* group, **41**, 104–116 (1956)

☐ **Osumilite-(Mg)**, $(K,Na)(Mg,Fe^{2+})_2(Al,Fe^{3+})_3(Si,Al)_{12}O_{30}$, hex., *Osumilite* group, **59**, 383 (1974)

☐ **Otavite**, $CdCO_3$, trig., *Calcite* group

☐ **Otjisumeite**, $PbGe_4O_9$, tric., ps. hex., **72**, 1026–1027 (1987)

☐ **Ottemannite**, Sn_2S_3, orth., **51**, 1551 (1966)

☐ **Ottrelite**, $(Mn^{2+},Fe^{2+},Mg)_2Al_4Si_2O_{10}(OH)_4$, mon. and tric., green, compare **Chloritoid**, **Magnesiochloritoid**, *Min. Abs.* **30**, 285 (1979)

☐ **Otwayite**, $Ni_2(CO_3)(OH)_2 \cdot H_2O$, orth., bright green, **62**, 999–1002 (1977)

☐ **Ourayite**, $Ag_3Pb_4Bi_5S_{13}$ (?), orth., **64**, 243–244 (1979)

☐ **Oursinite**, $(Co,Mg)(UO_2)_2Si_2O_7 \cdot 6H_2O$, orth., pale yellow, **69**, 567 (1984)

☐ **Overite**, $CaMgAl(PO_4)_2(OH) \cdot 4H_2O$, orth., *Overite* group, **59**, 48–59 (1974)

☐ **Owyheeite**, $Ag_2Pb_7(Sb,Bi)_8S_{20}$, orth., **70**, 440 (1985)

☐ **Oxammite**, $(NH_4)_2C_2O_4 \cdot H_2O$, (an oxalate), orth.

☐ **Oyelite**, $Ca_{10}Si_8B_2O_{29} \cdot 12.5H_2O$, orth., **71**, 230 (1986)

P

- **Pääkkönenite**, Sb_2AsS_2, mon., **67**, 858 (1982)
- **Pabstite**, $Ba(Sn,Ti)Si_3O_9$, hex., compare **Bazirite**, **Benitoite**, **50**, 1164–1169 (1965)
- **Pachnolite**, $NaCaAlF_6 \cdot H_2O$, mon., dimorph. with **Thomsenolite**
- **Paderaite**, $AgPb_2Cu_6Bi_{11}S_{22}$, mon., **72**, 224 (1987)
- **Padmaite**, PdBiSe, cub., compare **Ullmannite**, *Cobaltite* group, **78**, 451–452 (1993)
- **Pahasapaite**, $(Ca,Li,K,Na)_{11}Li_8Be_{24}(PO_4)_{24} \cdot 38H_2O$, cub., **74**, 1195–1202, 1495 (1989)
- **Painite**, $CaZrBAl_9O_{18}$, hex., garnet-red, **42**, 580 (1957), **61**, 88–94 (1976)
- **Palarstanide**, $Pd_5(Sn,As)_2$, hex., **67**, 855–859 (1982), **74**, 1219–1220 (1989)
- **Palenzonaite**, $(Ca_2Na)Mn_2^{2+}(VO_4)_3$, cub., wine-red, isostructural with **Berzeliite**, **Manganberzeliite**, and the silicates of the *Garnet* group, **73**, 930 (1988)
- **Palermoite**, $(Sr,Ca)(Li,Na)_2Al_4(PO_4)_4(OH)_4$, orth., compare **Bertossaite**, **50**, 777 (1965), **60**, 460–465 (1975)
- **Palladium**, Pd, or (Pd,Hg), cub.
- **Palladoarsenide**, Pd_2As, mon., **60**, 162 (1975)
- **Palladobismutharsenide**, $Pd_2(As,Bi)$, orth., *Can. Min.* **14**, 410–413 (1976)
- **Palladseite**, $Pd_{17}Se_{15}$, cub., compare Prassoite, **62**, 1059 (1977)
- **Palmierite**, $(K,Na)_2Pb(SO_4)_2$, trig., compare **Kalistrontite**, **7**, 195 (1922)
- **Palygorskite**, $(Mg,Al)_2Si_4O_{10}(OH) \cdot 4H_2O$, mon. and orth., compare **Tuperssautsiaite**, **Yofortierite**

☐ **Panasqueiraite**, $CaMg(PO_4)(OH,F)$, mon., compare **Isokite**, **67**, 859 (1982)

☐ **Panethite**, $(Na,Ca,K)_2(Mg,Fe^{2+},Mn^{2+})_2(PO_4)_2$, mon., **53**, 509 (1968)

☐ **Panunzite**, $(K,Na)AlSiO_4$, hex., polymorph. with **Kaliophilite**, **Kalsilite**, and **Trikalsilite**, **42**, 286 (1957), **64**, 658 (1979), **73**, 420–421 (1988)

☐ **Paolovite**, Pd_2Sn, orth., **59**, 1331 (1974)

☐ **Papagoite**, $CaCu^{2+}AlSi_2O_6(OH)_3$, mon., blue, **45**, 599–611 (1960)

☐ **Para-alumohydrocalcite**, $CaAl_2(CO_3)_2(OH)_4 \cdot 6H_2O$, **63**, 794 (1978)

☐ **Parabariomicrolite**, $BaTa_4O_{10}(OH)_2 \cdot 2H_2O$, trig., **73**, 194 (1988)

☐ **Parabrandtite**, $Ca_2Mn^{2+}(AsO_4)_2 \cdot 2H_2O$, tric., dimorph. with **Brandtite**, *Fairfieldite* group, **73**, 1496 (1988)

☐ **Parabutlerite**, $Fe^{3+}(SO_4)(OH) \cdot 2H_2O$, orth., dimorph. with **Butlerite**, orange, **23**, 742–745 (1938)

☐ **Paracelsian**, $BaAl_2Si_2O_8$, mon., dimorph. with **Celsian**, *Feldspar* group

☐ **Parachrysotile**, $Mg_3Si_2O_5(OH)_4$, orth., polymorph. with **Antigorite**, **Clinochrysotile**, **Lizardite**, and **Orthochrysotile**, *Kaolinite-Serpentine* group, **42**, 585 (1957)

☐ **Paracoquimbite**, $Fe_2^{3+}(SO_4)_3 \cdot 9H_2O$, trig., dimorph. with **Coquimbite**, **56**, 1567 (1971)

☐ **Paracostibite**, CoSbS, orth., dimorph. with **Costibite**, **56**, 631 (1971)

☐ **Paradamite**, $Zn_2(AsO_4)(OH)$, tric., dimorph. with **Adamite**, **41**, 958 (1956)

☐ **Paradocrasite**, $Sb_2(Sb,As)_2$, mon., **56**, 1127–1146 (1971)

☐ **Parafransoletite**, $Ca_3Be_2(PO_4)_2(PO_3OH)_2 \cdot 4H_2O$, tric., dimorph. with **Fransoletite**, **77**, 843–847 (1992)

☐ **Paragonite**, $NaAl_2(Si_3Al)O_{10}(OH)_2$, mon., *Mica* group

☐ **Paraguanajuatite**, $Bi_2(Se,S)_3$, trig., dimorph. with **Guanajuatite**, **34**, 619 (1949)

Parahilgardite = **Hilgardite-3A**, **70**, 636–637 (1985)

☐ **Parahopeite**, $Zn_3(PO_4)_2 \cdot 4H_2O$. tric., dimorph. with **Hopeite**

☐ **Parajamesonite**, $Pb_4FeSb_6S_{14}$, orth., dimorph. with **Jamesonite**, **34**, 133 (1949)

☐ **Parakeldyshite**, $Na_2ZrSi_2O_7$, tric., compare **Keldyshite**, **64**, 656–657 (1979)

☐ **Parakhinite**, $PbCu_3^{2+}Te^{6+}O_4(OH)_6$, hex., dark green. dimorph. with **Khinite**, **63**, 1016–1019 (1978)

☐ **Paralaurionite**, PbCl(OH), mon., dimorph. with **Laurionite**, *Min. Mag.* **29**, 341 (1950)

☐ **Paralstonite**, $BaCa(CO_3)_2$, trig., trimorph. with **Alstonite** and **Barytocalcite**, forms a series with **Olekminskite**, **64**, 1332 (1979), **66**, 219 (1981)

☐ **Paramelaconite**, $Cu_2^{1+}Cu_2^{2+}O_3$, tet., purplish-black, **26**, 657–672 (1941), **63**, 180–185 (1978)

☐ **Paramendozavilite**, $NaAl_4Fe_7^{3+}(PO_4)_5(P^{5+}Mo_{12}^{6+}O_{40})(OH)_{16} \cdot 56H_2O$, mon. or tric., pale yellow, **73**, 194 (1988)

☐ **Paramontroseite**, VO_2, orth., **40**, 861–875 (1955)

☐ **Paranatisite**, Na_2TiSiO_5, orth., orange-yellow to orange-brown, dimorph. with **Natisite**, **79**, 764 (1994)

☐ **Paranatrolite**, $Na_2Al_2Si_3O_{10} \cdot 3H_2O$, mon. (?), ps. orth., *Zeolite* group, **66**, 1276–1277 (1981)

☐ **Paranite-(Y)**, $Ca_2Y(AsO_4)(WO_4)_2$, tet., compare **Scheelite**, **78**, 452 (1993)

☐ **Paraotwayite**, $Ni(OH)_{2-x}(SO_4,CO_3)_{0.5x}$, ($x \sim 0.6$), mon., fib., green, **73**, 1496 (1988)

☐ **Parapierrotite**, $Tl(Sb,As)_5S_8$, mon., dimorph. with **Pierrotite**, black, **61**, 504 (1976)

☐ **Pararammelsbergite**, $NiAs_2$, orth., trimorph. with **Rammelsbergite** and **Krutovite**, **25**, 561–577 (1940)

☐ **Pararealgar**, AsS, mon., yellow to orange-yellow, dimorph. with **Realgar**, **66**, 1277 (1981)

☐ **Pararobertsite**, $Ca_2Mn^{3+}_3(PO_4)_3O_2 \cdot 3H_2O$, mon., red, dimorph. with **Robertsite**, *Can. Min.* **27**, 451–455 (1988)

☐ **Paraschachnerite**, Ag_3Hg_2, orth., **58**, 347 (1973)

☐ **Paraschoepite**, $UO_3 \cdot 2H_2O$ (?), orth., yellow, **32**, 344–350 (1947), **45**, 1026–1061 (1960)

☐ **Parascholzite**, $CaZn_2(PO_4)_2 \cdot 2H_2O$, mon., dimorph. with **Scholzite**, **66**, 843–851 (1981)

☐ **Paraspurrite**, $Ca_5(SiO_4)_2(CO_3)$, mon., dimorph. with **Spurrite**, **62**, 1003–1005 (1977)

☐ **Parasymplesite**, $Fe^{2+}_3(AsO_4)_2 \cdot 8H_2O$, mon., dimorph. with **Symplesite**, forms a series with **Köttigite**, greenish blue, *Vivianite* group, **40**, 368 (1955)

☐ **Paratacamite**, $Cu^{2+}_2Cl(OH)_3$, trig., trimorph. with **Atacamite** and **Botallackite**, green, **36**, 384 (1951)

☐ **Paratellurite**, TeO_2, tet., dimorph. with **Tellurite**, *Rutile* group, **45**, 1272–1274 (1960)

☐ **Paraumbite**, $K_3Zr_2HSi_6O_{18} \cdot nH_2O$, orth., **69**, 813–814 (1984)

☐ **Paravauxite**, $Fe^{2+}Al_2(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., dimorph. with **Metavauxite**, *Paravauxite* group, **7**, 108 (1922)

Parawollastonite = **Wollastonite-2*M***

☐ **Pargasite**, $NaCa_2(Mg,Fe^{2+})_4Al(Si_6Al_2)O_{22}(OH)_2$, $Mg/(Mg + Fe^{2+}) = 0.3$–1.0, forms a series with **Ferropargasite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Parisite-(Ce)**, $Ca(Ce,La)_2(CO_3)_3F_2$, trig., the following polytypes are known: **-6*R***, **-16*H***, **-42*R***, **-48*R***

☐ **Parisite-(Nd)**, $Ca(Nd,Ce,La)_2(CO_3)_3F_2$, trig., **73**, 1496–1497 (1988)

☐ **Parkerite**, $Ni_3(Bi,Pb)_2S_2$, mon., bronze color, compare **Rhodplumsite**, **Shandite**, **28**, 343 (1943)

☐ **Parkinsonite**, $(Pb,Mo,\square)_8O_8Cl_2$, tet., red to purplish-red, *Min. Mag.* **58**, 59–68 (1994)

☐ **Parnauite**, $Cu_9^{2+}(AsO_4)_2(SO_4)(OH)_{10}\cdot 7H_2O$, orth., green to blue, **63**, 704–708 (1978)

☐ **Parsettensite**, $(K,Na,Ca)(Mn,Al)_7Si_8O_{20}(OH)_8\cdot 2H_2O$ (?), mon., ps. hex., copper-red, **10**, 107 (1925)

☐ **Parsonsite**, $Pb_2(UO_2)(PO_4)_2\cdot 2H_2O$, tric., yellow, **35**, 245–250 (1950)

☐ **Partheite**, $Ca_2Al_4Si_4O_{15}(OH)_2\cdot 4H_2O$, mon., fibrous, dimorph. with **Lawsonite**, related to the *Zeolite* group, **65**, 1068 (1980)

☐ **Partzite**, $Cu_2^{2+}Sb^{2+}(O,OH)_7$ (?), cub. (?), *Stibiconite* group (?), **39**, 407 (1954)

☐ **Parwelite**, $(Mn^{2+},Mg)_5Sb(As,Si)_2O_{12}$, mon., **55**, 323 (1970)

☐ **Pascoite**, $Ca_3V_{10}^{5+}O_{28}\cdot 17H_2O$, mon., orange

☐ **Patronite**, VS_4 (?), mon.

☐ **Paulingite**, $(K,Na)_2Ca(Si_{13}Al_4)O_{34}\cdot 13H_2O$ (?), cub., *Zeolite* group, **45**, 79–91 (1960), **67**, 799–803 (1982)

☐ **Paulkellerite**, $Bi_2^{3+}Fe^{3+}(PO_4)O_2(OH)_2$, mon., greenish-yellow, **73**, 870–875 (1988)

☐ **Paulkerrite**, $K(Mg,Mn^{2+})_2(Fe^{3+},Al)_2Ti(PO_4)_4(OH)_3\cdot 15H_2O$, orth., brown, compare **Mantienneite**, *Mineral. Rec.* **15**, 303–306 (1984), **70**, 875 (1985)

☐ **Paulmooreite**, $Pb_2As_2^{3+}O_5$ mon., colorless to light orange, **64**, 352–354 (1979)

☐ **Pavonite**, $(Ag,Cu)(Bi,Pb)_3S_5$, mon., compare **Mummeite**, **Cupropavonite**, **39**, 409–415 (1954), *Can. Min.* **13**, 408–410 (1975)

☐ **Paxite**, $CuAs_2$, mon., ps. orth., **47**, 1484 (1962)

☐ **Pearceite**, $(Ag,Cu)_{16}As_2S_{11}$, mon., forms a series with **Polybasite**

☐ **Pecoraite**, $Ni_3Si_2O_5(OH)_4$, mon., green, dimorph. with **Nepouite**, compare **Clinochrysotile**, *Kaolinite-Serpentine* group, **54**, 1740 (1969)

☐ **Pectolite**, $NaCa_2Si_3O_8(OH)$, tric., forms a series with **Serandite**; also mon., polytypes **-1*A*** and **-2*M***, **63**, 427 (1978)

☐ **Pehrmanite**, $(Fe^{2+},Zn,Mg)_2Al_6BeO_{12}$, trig., green, compare **Musgravite**, **67**, 859 (1982)

☐ **Peisleyite**, $Na_3Al_{16}(SO_4)_2(PO_4)_{10}(OH)_{17}\cdot 20H_2O$, mon., **68**, 849–850 (1983)

☐ **Pekoite**, $PbCuBi_{11}(S,Se)_{18}$, orth., **61**, 15–20 (1976)

☐ **Pellyite**, $Ba_2Ca(Fe^{2+},Mg)_2Si_6O_{17}$, orth., **57**, 597–598 (1972), **61**, 67–73 (1976)

☐ **Penfieldite**, $Pb_2Cl_3(OH)$, hex., **26**, 293 (1941)

Penginite = **Penzhinite**

☐ **Pengzhizhongite**, $(Mg,Zn,Al,Fe^{3+})_4(Sn^{4+},Fe_2^{3+})Al_{10}O_{22}(OH)_2$, trig., polytype **-6*T***, yellow to yellow-brown, **76**, 1730–1731 (1991)

☐ **Penikisite**, $Ba(Mg,Fe^{2+})_3Al_2(PO_4)_3(OH)_3$, tric., blue to green, forms a series with **Kulanite**, *Bjarebyite* group, **64**, 657 (1979)

☐ **Penkvilksite**, $Na_4Ti_2Si_8O_{22}\cdot 5H_2O$, mon. or orth., **60**, 340–341 (1975)

☐ **Pennantite**, $Mn_5^{2+}Al(Si_3Al)O_{10}(OH)_8$, mon., *Chlorite* group, **32**, 254 (1947)

Pennine, Penninite, a ps.-trig. var. of **Clinochlore**

☐ **Penroseite**, $(Ni,Co,Cu)Se_2$, cub., *Pyrite* group, **11**, 42 (1926), **22**, 319–324 (1937)

☐ **Pentagonite**, $Ca(V^{4+}O)Si_4O_{10}\cdot 4H_2O$, orth., blue, dimorph. with **Cavansite**, **58**, 405–424 (1973)

☐ **Pentahydrite**, $MgSO_4\cdot 5H_2O$, tric., *Chalcanthite* group

☐ **Pentahydroborite**, $CaB_2O(OH)_6 \cdot 2H_2O$, tric., **47**, 1482 (1962)

☐ **Pentlandite**, $(Fe,Ni)_9S_8$, cub., bronze color, forms a series with **Cobalt pentlandite**, *Pentlandite* group

☐ **Penzhinite**, $(Ag,Cu)_4Au(S,Se)_4$, hex., **70**, 875–876 (1985)

☐ **Peprossiite-(Ce)**, $(Ce,La)Al_3B_3O_9$, hex., light yellow, *Eur. J. Min.* **5**, 53–58 (1993), **78**, 1109 (1993)

☐ **Percylite**, $PbCu^{2+}Cl_2(OH)_2$, cub., sky-blue, (a dubious mineral), *Mineral. Rec.* **5**, 280–287 (1974)

☐ **Peretaite**, $CaSb_4^{3+}O_4(OH)_2(SO_4)_2 \cdot 2H_2O$, mon., **65**, 936–946 (1980)

☐ **Perhamite**, $Ca_3Al_7(SiO_4)_3(PO_4)_4(OH)_3 \cdot 16.5H_2O$, hex., **63**, 794 (1978)

☐ **Periclase**, MgO, cub., *Periclase* group

Peridot, a gem var. of **Forsterite**

☐ **Perite**, $PbBiO_2Cl$, orth., yellow, compare **Nadorite**, **46**, 765 (1961)

☐ **Perlialite**, $K_9Na(Ca,Sr)Al_{12}Si_{24}O_{72} \cdot 15H_2O$, hex., *Zeolite* group, **70**, 1331 (1985), **76**, 1734 (1991)

☐ **Perloffite**, $Ba(Mn^{2+},Fe^{2+})_3Fe_2^{3+}(PO_4)_3(OH)_3$, mon., dark brown, *Bjarebyite* group, **62**, 1059 (1977)

☐ **Permingeatite**, Cu_3SbSe_4, tet., *Stannite* group, **57**, 1554 (1972)

☐ **Perovskite**, $CaTiO_3$, orth., ps. cub., *Perovskite* group

☐ **Perraultite**, $KBaNa_2(Mn^{2+},Fe^{2+})_8(Ti,Nb)_4Si_8O_{32}(OH,F,H_2O)_7$, mon., orange-brown, compare **Jinshajiangite**, **76**, 300, 2023 (1991)

☐ **Perrierite**, $(Ca,Ce,Th)_4(Mg,Fe^{2+})_2(Ti,Fe^{3+})_3Si_4O_{22}$, mon., dimorph. with **Chevkinite**, **36**, 926 (1951), **44**, 115–137 (1959)

☐ **Perroudite**, $Hg_{5-x}Ag_{4+x}Ss_{5-x}(Cl,I,Br)_{4+x}$, orth., bright red, compare **Capgaronnite**, **72**, 1251–1262 (1987)

☐ **Perryite**, $(Ni,Fe)_8(Si,P)_3$, trig., **54**, 579 (1969), **56**, 1123 (1971), *Acta Cryst.* **C47**, 1358–1361 (1991)

☐ **Petalite**, $LiAlSi_4O_{10}$, mon.

☐ **Petarasite**, $Na_5Zr_2Si_6O_{18}(Cl,OH)\cdot 2H_2O$, mon., *Lovozerite* group, **66**, 1277 (1981)

☐ **Petedunnite**, $Ca(Zn,Mn^{2+},Fe^{2+},Mg)Si_2O_6$, mon., dark green, *Pyroxene* group, **72**, 157–166 (1987)

☐ **Petersenite-(Ce)**, $Na_4(Ce,La,Nd)_2(CO_3)_5$, mon., *Can. Min.* **32**, 405–414 (1994)

☐ **Petersite-(Y)**, $(Y,Ce,Nd,Ca)Cu_6^{2+}(PO_4)_3(OH)_6\cdot 3H_2O$, hex., yellow-green, *Mixite* group, **67**, 1039–1042 (1982)

☐ **Petitjeanite**, $Bi_3^{3+}O(OH)(PO_4)_2$, tric., white to pale pink or yellow, forms series with **Preisingerite** and **Schumacherite**, **79**, 764–765 (1994)

☐ **Petrovicite**, $PbHgCu_3BiSe_5$, orth., **62**, 594–595 (1977)

☐ **Petrovskaite**, AuAg(S,Se), mon., **70**, 1331 (1985)

☐ **Petrukite**, $(Cu,Fe,Zn)_3(Sn,In)S_4$, orth., *Can. Min.* **27**, 673–688 (1988)

☐ **Petscheckite**, $U^{4+}Fe^{2+}(Nb,Ta)_2O_8$, hex., metamict, black, **63**, 941–946 (1978)

☐ **Petzite**, Ag_3AuTe_2, cub., compare **Fischesserite**

☐ **Pharmacolite**, $CaHAsO_4\cdot 2H_2O$, mon., compare **Ardealite**, **Brushite**, **Gypsum**

☐ **Pharmacosiderite**, $KFe_4^{3+}(AsO_4)_3(OH)_4\cdot 6–7H_2O$, cub., compare **Alumopharmacosiderite**, **Sodium pharmacosiderite**

☐ **Phaunouxite**, $Ca_3(AsO_4)_2\cdot 11H_2O$, tric., **68**, 850 (1983)

☐ **Phenakite**, Be_2SiO_4, trig.

Phengite, a var. of **Muscovite** with high silica content

☐ **Philipsbornite**, $PbAl_3(AsO_4)_2(OH)_5\cdot H_2O$, trig., grayish-green, *Crandallite* group, **67**, 859 (1982)

☐ **Philipsburgite**, $(Cu^{2+},Zn)_6(AsO_4,PO_4)_2(OH)_6 \cdot H_2O$, mon., bright green, compare **Kipushite**, **71**, 1279 (1986)

☐ **Phillipsite**, $(K,Na,Ca)_{1-2}(Si,Al)_8O_{16} \cdot 6H_2O$, mon., *Zeolite* group, compare **Harmotome**, **Wellsite**

☐ **Phlogopite**, $KMg_3Si_3AlO_{10}(F,OH)_2$, mon., forms a series with **Biotite**, *Mica* group

☐ **Phoenicochroite**, $Pb_2(CrO_4)O$, mon., cochineal-red, compare **Lanarkite**, **55**, 784–792 (1970)

☐ **Phosgenite**, $Pb_2(CO_3)Cl_2$, tet.

☐ **Phosinaite**, $Na_3(Ca,Ce)PSiO_7$ (?), orth., compare **Clinophosinaite**, **60**, 488 (1975)

☐ **Phosphammite**, $(NH_4)_2HPO_4$, mon. (?), *Min. Mag.* **39**, 346–348 (1973)

☐ **Phosphoferrite**, $(Fe^{2+},Mn^{2+})_3(PO_4)_2 \cdot 3H_2O$, orth., forms a series with **Reddingite**

☐ **Phosphofibrite**, $KCu^{2+}Fe^{3+}_{15}(PO_4)_{12}(OH)_{12} \cdot 12H_2O$, orth., yellow to yellow-green, **69**, 1192 (1984)

☐ **Phosphophyllite**, $Zn_2(Fe^{2+},Mn^{2+})(PO_4)_2 \cdot 4H_2O$, mon.

☐ **Phosphorrösslerite**, $MgHPO_4 \cdot 7H_2O$, mon., compare **Rösslerite**, **25**, 313 (1940)

☐ **Phosphosiderite**, $Fe^{3+}PO_4 \cdot 2H_2O$, mon., red, dimorph. with **Strengite**, compare **Metavariscite**, **Kolbeckite**

☐ **Phosphuranylite**, $KCa(H_3O)_3(UO_2)_7(PO_4)_4O_4 \cdot 8H_2O$, orth., deep yellow, compare **Kivuite**, **76**, 307 (1991), **77**, 1119–1120 (1992)

☐ **Phuralumite**, $Al_2(UO_2)_3(PO_4)_2(OH)_6 \cdot 10H_2O$, mon., lemon-yellow, **65**, 208 (1980)

☐ **Phurcalite**, $Ca_2(UO_2)_3O_2(PO_4)_2 \cdot 7H_2O$, orth., yellow, **63**, 1283 (1978), **64**, 243 (1979), **77**, 213 (1992)

☐ **Phyllotungstite**, $CaFe^{3+}_3H(WO_4)_6 \cdot 10H_2O$, orth., yellow, **71**, 846 (1986)

Pianlinite, $Al_2Si_2O_6(OH)_2$, **65**, 1068 (1980)

☐ **Pickeringite**, $MgAl_2(SO_4)_4 \cdot 22H_2O$, mon., forms a series with **Halotrichite**, *Halotrichite* group

Picotite = chromian **Spinel**, $(Mg,Fe^{2+})(Al,Cr)_2O_4$

☐ **Picotpaulite**, $TlFe_2S_3$, orth., **57**, 1909 (1972)

☐ **Picromerite**, $K_2Mg(SO_4)_2 \cdot 6H_2O$, mon., *Picromerite* group

☐ **Picropharmacolite**, $H_2Ca_4Mg(AsO_4)_4 \cdot 11H_2O$, tric.

☐ **Piemontite** (Piedmontite), $Ca_2(Al,Mn^{3+},Fe^{3+})_3(SiO_4)_3(OH)$, mon., purplish-red, *Epidote* group

☐ **Pierrotite**, $Tl_2Sb_6As_4S_{16}$, orth., dimorph. with **Parapierrotite**, **57**, 1909–1910 (1972), **70**, 220 (1985)

☐ **Pigeonite**, $(Mg,Fe^{2+},Ca)(Mg,Fe^{2+})Si_2O_6$, mon., *Pyroxene* group

☐ **Pilsenite**, Bi_4Te_3, trig., **69**, 215 (1984)

Pimelite = Nickel-kerolite

☐ **Pinakiolite**, $(Mg,Mn^{2+})_2(Mn^{3+},Sb^{3+})BO_5$, mon., black, polymorph. with **Fredrikssonite**, **Orthopinakiolite**, and **Takeuchiite**, **71**, 227 (1986)

☐ **Pinalite**, $Pb_3W^{6+}O_5Cl_2$, orth., bright yellow, **74**, 934–935 (1989)

☐ **Pinchite**, $Hg_5O_4Cl_2$, orth., **61**, 340 (1976)

☐ **Pinnoite**, $MgB_2O_4 \cdot 3H_2O$, tet., yellow

☐ **Pintadoite**, $Ca_2V_2^{5+}O_7 \cdot 9H_2O$, green

☐ **Pirquitasite**, Ag_2ZnSnS_4, tet., forms a series with **Hocartite**, *Stannite* group, **68**, 1249 (1983)

☐ **Pirssonite**, $Na_2Ca(CO_3)_2 \cdot 2H_2O$, orth.

Pitchblende = massive **Uraninite**

☐ **Pitaglianoite**, $K_2Na_6Si_6Al_6O_{24}(SO_4) \cdot 2H_2O$, hex., *Cancrinite* group, **76**, 2003–2008 (1991)

☐ **Pitticite**, an amor. hydrous ferric arsenate-sulfate

☐ **Piypite**, $K_2Cu_2^{2+}(SO_4)_2O$, tet., emerald-green to dark green, **70**, 437–438 (1985)

Plagioclase, a series of triclinic silicates of general formula $(Na,Ca)Al(Al,Si)Si_2O_8$, a complete series from **Albite** (Ab), $NaAlSi_3O_8$, to **Anorthite** (An), $CaAl_2Si_2O_8$. The series is commonly named **Albite** (An 0–10), Oligoclase (An 10–30), Andesine (An 30–50), Labradorite (An 50–70), Bytownite (An 70–90), **Anorthite** (An 90–100 mole percent). *Feldspar* group

☐ **Plagionite**, $Pb_5Sb_8S_{17}$, mon.

☐ **Plancheite**, $Cu_8^{2+}Si_8O_{22}(OH)_4 \cdot H_2O$, orth., light blue, **62**, 491–502 (1977)

☐ **Planerite**, $Al_6(PO_4)_2(PO_3OH)_2(OH)_8 \cdot 4H_2O$, tric., *Turquoise* group

☐ **Platarsite**, (Pt,Rh,Ru)AsS, cub., *Cobaltite* group, **64**, 657 (1979)

Platiniridium = platinian **Iridium**, *Can. Min.* **29**, 231–237 (1991)

☐ **Platinum**, Pt, commonly containing Pd, Ir, Fe, Ni, cub.

☐ **Plattnerite**, PbO_2, tet., dimorph. with **Scrutinyite**, *Rutile* group

☐ **Platynite**, $PbBi_2(Se,S)_3$, trig., compare **Nevskite**

☐ **Playfairite**, $Pb_{16}Sb_{18}Si_{43}$, mon., **53**, 1424 (1968)

Plazolite = **Hibschite**, **29**, 247 (1944), **70**, 873 (1985)

Pleonaste = ferroan **Spinel**, $(Mg,Fe^{2+})Al_2O_4$

Plessite, a fine-grained intergrowth of **Kamacite** with **Taenite**

☐ **Plombierite**, $Ca_5H_2Si_6O_{18} \cdot 6H_2O$ (?), **38**, 735–736 (1953), **39**, 1038 (1954)

Plumalsite, $Pb_4Al_2(SiO_3)_7$ (?), orth., yellow to green, **53**, 349–350 (1968)

Plumbago = **Graphite**

☐ **Plumbobetafite**, (Pb,U,Ca)(Ti,Nb)$_2$O$_6$(OH,F), cub., *Pyrochlore* group, **55**, 1068 (1970)

☐ **Plumboferrite**, $PbFe^{3+}_{4}O_{7}$, trig.

☐ **Plumbogummite**, $PbAl_{3}(PO_{4})_{2}(OH)_{5}\cdot H_{2}O$, trig., *Crandallite* group

☐ **Plumbojarosite**, $PbFe^{3+}_{6}(SO_{4})_{4}(OH)_{12}$, trig., brown, *Alunite* group

☐ **Plumbomicrolite**, $(Pb,Ca,U)_{2}Ta_{2}O_{6}(OH)$, cub., *Pyrochlore* group, **47**, 1220 (1962), **62**, 403–410 (1977)

☐ **Plumbonacrite**, $Pb_{10}(CO_{3})_{6}O(OH)_{6}$ (?), hex. (existence in Nature uncertain), **52**, 563 (1967)

☐ **Plumbopalladinite**, $Pd_{3}Pb_{2}$, hex., **56**, 1121 (1971)

☐ **Plumbopyrochlore**, $(Pb,Y,U,Ca)_{2-x}Nb_{2}O_{6}(OH)$, cub., *Pyrochlore* group, **55**, 1068 (1970)

☐ **Plumbotellurite**, α-$PbTe^{4+}O_{3}$, orth., dimorph. with **Fairbankite**, **67**, 1075 (1982)

☐ **Plumbotsumite**, $Pb_{5}Si_{4}O_{8}(OH)_{10}$, orth., **67**, 1075–1076 (1982)

Plumosite = **Boulangerite** (?), **69**, 411 (1984)

☐ **Poitevinite**, $(Cu^{2+},Fe^{2+},Zn)SO_{4}\cdot H_{2}O$, mon., salmon-colored, *Kieserite* group, **50**, 263 (1965)

☐ **Pokrovskite**, $Mg_{2}(CO_{3})(OH)_{2}\cdot 0.5H_{2}O$, mon., compare *Rosasite* group and **Malachite**, **70**, 217 (1985)

☐ **Polarite**, Pd(Bi,Pb), orth., compare **Borishanskiite**, dimorph. with **Sobolevskite (?)**, **55**, 1810 (1970)

☐ **Poldervaartite**, $Ca(Ca_{0.5}Mn^{2+}_{0.5})(Si_{3}OH)(OH)$, orth., **78**, 1082–1087 (1993)

☐ **Polhemusite**, (Zn,Hg)S, tet., ps. cub., black, **63**, 1153–1161 (1978)

☐ **Polkovicite**, $(Fe,Pb)_{3}(Ge,Fe)_{1-x}S_{4}$, cub., forms a series with **Morozeviczite**, **66**, 437–438 (1981)

☐ **Pollucite**, $(Cs,Na)_{2}Al_{2}Si_{4}O_{12}\cdot H_{2}O$, cub., forms a series with **Analcime**, *Zeolite* group

☐ **Polybasite**, $(Ag,Cu)_{16}Sb_{2}S_{11}$, mon., ps. hex., forms a series with **Pearceite**

☐ **Polycrase-(Y)**, $(Y,Ca,Ce,U,Th)(Ti,Nh,Ta)_2O_6$, orth., compare **Uranopolycrase**

☐ **Polydymite**, $NiNi_2S_4$, cub., forms a series with **Linnaeite**, *Linnaeite* group

☐ **Polyhalite**, $K_2Ca_2Mg(SO_4)_4 \cdot 2H_2O$, tric., compare **Leightonite**

☐ **Polylithionite**, $KLi_2AlSi_4O_{10}(F,OH)_2$, mon., *Mica* group

☐ **Polymignite**, $(Ca,Fe,Y,Th)(Nb,Ti,Ta,Zr)O_4$, orth., compare **Calciobetafite**, **Zirkelite**

☐ **Polyphite**, $Na_{17}Ca_3Mg(Ti,Mn)_3(Si_2O_7)_2(PO_4)_6O_3F_5$, tric., light brown, compare **Quadruphite**, **Sobolevite**, and **Lomonosovite**, **78**, 1316–1317 (1993)

☐ **Ponomarevite**, $K_4Cu_4^{2+}OCl_{10}$, mon., orange-red, **75**, 709 (1990)

☐ **Portlandite**, $Ca(OH)_2$, hex., **19**, 35 (1934)

☐ **Posnjakite**, $Cu_4^{2+}(SO_4)(OH)_6 \cdot H_2O$, mon., **52**, 1582–1583 (1967)

☐ **Potarite**, PdHg, tet.

Potash feldspar = Potassium feldspar

☐ **Potassium alum**, $KAl(SO_4)_2 \cdot 12H_2O$, cub., compare **Lonecreekite**, **Tschermigite**

Potassium feldspar = **Microcline**, **Orthoclase**, or **Sanidine**

☐ **Potassium-fluor-richterite**, $(K,Na)(Ca,Na)_2Mg_5Si_8O_{22}(F,OH)_2$, mon., light grey, *Amphibole* group, **79**, 186 (1994)

☐ **Potosiite**, $Pb_6Sn_2^{4+}Fe^{2+}Sb_2^{5+}S_{16}$, tric., compare **Cylindrite**, **Franckeite**, **Incaite**, **68**, 1249–1250 (1983)

☐ **Pottsite**, $PbBiH(VO_4)_2 \cdot 2H_2O$, tet., yellow, **74**, 503 (1989)

☐ **Poubaite**, $PbBi_2Se_2(Te,S)_2$, trig., **63**, 1283 (1978)

☐ **Poudretteite**, $KNa_2B_3Si_{12}O_{30}$, hex., *Osumilite* group, **73**, 1497 (1988)

☐ **Poughite**, $Fe_2^{3+}(TeO_3)_2(SO_4)\cdot 3H_2O$, orth., yellow to greenish-yellow, **53**, 1075–1080 (1968)

P-ourayite, $Pb_{14}Ag_{18}Bi_{28}S_{65}$, orth., **70**, 1332 (1985)

☐ **Povondraite**, $NaFe_3^{3+}Fe_6^{3+}(BO_3)_3(Si_6O_{18})(O,OH)_4$, trig., black, *Tourmaline* group, **78**, 433–436 (1993)

☐ **Powellite**, $CaMoO_4$, tet., forms a series with **Scheelite**

☐ **Poyarkovite**, Hg_3ClO, mon., deep red, **67**, 860 (1982)

Prassoite, $(Rh,Cu,Ru)_3S_4$ (?), compare **Palladseite**, **74**, 1220 (1989)

Pravdite = **Britholite**

☐ **Prehnite**, $Ca_2Al_2Si_3O_{10}(OH)_2$, orth., green

☐ **Preisingerite**, $Bi_3(AsO_4)_2O(OH)$, tric., compare **Schumacherite**, **67**, 833–840 (1982)

☐ **Preiswerkite**, $Na(Mg_2Al)(Si_2Al_2)O_{10}(OH)_2$, mon., the **-1*M*** polytype is known, *Mica* group, **65**, 1134–1137 (1980), **78**, 1290–1298 (1993)

☐ **Preobrazhenskite**, $Mg_3B_{11}O_{15}(OH)_9$, orth., **42**, 704 (1957), **55**, 1071 (1970), *Can. Min.* **32**, 387–396 (1994)

☐ **Priceite**, $Ca_4B_{10}O_{19}\cdot 7H_2O$ (?), tric.

☐ **Priderite**, $(K,Ba)(Ti,Fe^{3+})_8O_{16}$, tet., *Cryptomelane* group, **36**, 793 (1951)

☐ **Pringleite**, $Ca_9B_{26}O_{34}(OH)_{24}Cl_4\cdot 13H_2O$, tric., cols. to orange, dimorph. with **Ruitenbergite**, *Can. Min.* **31**, 795–800 (1993)

Priorite = **Aeschynite-(Y)**, **51**, 152–158 (1966)

☐ **Probertite**, $NaCaB_5O_7(OH)_4\cdot 3H_2O$, mon., **14**, 427–430 (1929)

☐ **Prosopite**, $CaAl_2(F,OH)_8$, mon.

☐ **Prosperite**, $CaZn_2(AsO_4)_2\cdot H_2O$, mon., **65**, 208 (1980)

☐ **Protasite**, $Ba(UO_2)_3O_3(OH)_2\cdot 3H_2O$, mon., ps. hex., orange, **72**, 225, 1230–1238 (1987)

Protojoseite, Bi_4TeS_2, hex., dimorph. with **Joseite**, **69**, 1192 (1984)

☐ **Proudite**, $Cu_{0-1}Pb_{7.5}Bi_{9.3-9.7}(S,Se)_{22}$, mon., **61**, 839–852 (1976)

☐ **Proustite**, Ag_3AsS_3, trig., scarlet red, dimorph. with **Xanthoconite**, compare **Pyrargyrite**

☐ **Przhevalskite**, $Pb(UO_2)_2(PO_4)_2{\cdot}4H_2O$, orth., bright yellow, **41**, 816 (1956), **43**, 381 (1958)

☐ **Pseudo-autunite**, $(H_3O)_4Ca_2(UO_2)_2(PO_4)_4{\cdot}5H_2O$ (?), tet., **50**, 1505 (1965)

☐ **Pseudoboleite**, $Pb_{31}Cu^{2+}_{24}Cl_{62}(OH)_{48}$, tet., indigo-blue, **77**, 1308 (1992)

☐ **Pseudobrookite**, $(Fe^{3+},Fe^{2+})_2(Ti,Fe^{3+})O_5$, orth., compare **Armalcolite**

☐ **Pseudocotunnite**, K_2PbCl_4 (?), orth. (?)

☐ **Pseudograndreefite**, $Pb_6(SO_4)F_{10}$, orth., **74**, 927–933 (1989)

☐ **Pseudolaueite**, $Mn^{2+}Fe^{3+}_2(PO_4)_2(OH)_2{\cdot}7–8H_2O$, mon., orange-yellow, **41**, 815 (1956)

☐ **Pseudomalachite**, $Cu^{2+}_5(PO_4)_3(OH)_4$, mon., dark green, trimorph. with **Ludjibaite** and **Reichenbachite**

Pseudorutile = **Arizonite**

Pseudowollastonite, $CaSiO_3$, tric., synthetic, stable at high temps., polymorph. with **Wollastonite-1*A***, **Wollastonite-2*M***, **Wollastonite-7*A***

Psilomelane, (a) (preferred usage) a general term for massive, not specifically identified, hard manganese oxides (compare Wad); (b) the mineral **Romanechite**

Ptilolite = **Mordenite**, **43**, 1224 (1958)

☐ **Pucherite**, $BiVO_4$, orth., brown, trimorph. with **Clinobisvanite** and **Dreyerite**

☐ **Pumpellyite-(Fe^{2+})**, $Ca_2Fe^{2+}Al_2(SiO_4)(Si_2O_7)(OH)_2{\cdot}H_2O$, mon., blue-green, forms two series, with **Pumpellyite-(Mg)**, and with **Julgoldite-(Fe^{2+})**, *Pumpellyite* group, **61**, 176–177 (1976), **68**, 1250 (1983)

☐ **Pumpellyite-(Fe^{3+})**, $Ca_2(Fe^{3+},Mg,Fe^{2+})(Al,Fe^{3+})_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$, mon., *Pumpellyite* group, *Can. Min.* **12**, 219–223 (1973)

☐ **Pumpellyite-(Mg)**, $Ca_2MgAl_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$, mon., blue-green, forms two series, with **Pumpellyite-(Fe^{2+})**, and with **Julgoldite-(Fe^{2+})**, *Pumpellyite* group, **10**, 412–418 (1925), **61**, 176–177 (1976), **68**, 1250 (1983), **77**, 1307–1308 (1992)

☐ **Pumpellyite-(Mn^{2+})**, $Ca_2(Mn^{2+},Mg)(Al,Mn^{3+},Fe)_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$, mon., grayish-pink, *Pumpellyite* group, **68**, 1250 (1983)

☐ **Purpurite**, $Mn^{3+}PO_4$, orth., purple, forms a series with **Heterosite**

☐ **Putoranite**, $Cu_{16-18}(Fe,Ni)_{18-19}S_{32}$, cub., **66**, 638–639 (1981)

☐ **p-Veatchite**, $Sr_2B_{11}O_{16}(OH)_5 \cdot H_2O$, mon., trimorph. with **Veatchite**, and with **Veatchite-A**, **45**, 1221–1229 (1960)

Pyralspite, a subgroup of the *Garnet* group, **Pyrope-Almandine-Spessartine**

☐ **Pyrargyrite**, Ag_3SbS_3, trig., deep red, dimorph. with **Pyrostilpnite**, compare **Proustite**

☐ **Pyrite**, FeS_2, cub., dimorph. with **Marcasite**, forms a series with **Cattierite**, brass yellow, *Pyrite* group

☐ **Pyroaurite**, $Mg_6Fe_2^{3+}(CO_3)(OH)_{16} \cdot 4H_2O$, trig., dimorph. with **Sjögrenite**, *Hydrotalcite* group

☐ **Pyrobelonite**, $PbMn^{2+}(VO_4)(OH)$, orth., red, *Descloizite* group

☐ **Pyrochlore**, $(Ca,Na)_2Nb_2O_6(OH,F)$, cub., forms a series with **Microlite**, *Pyrochlore* group

☐ **Pyrochroite**, $Mn^{2+}(OH)_2$, trig., *Brucite* group

☐ **Pyrolusite**, $Mn^{4+}O_2$, tet., trimorph. with **Akhtenskite** and **Ramsdellite**, *Rutile* group, compare **Nsutite**, **Vernadite**

☐ **Pyromorphite**, $Pb_5(PO_4)_3Cl$, hex., *Apatite* group

☐ **Pyrope**, $Mg_3Al_2(SiO_4)_3$, cub., *Garnet* group, forms two series, with **Almandine**, and with **Knorringite**

☐ **Pyrophanite**, $Mn^{2+}TiO_3$, trig., brownish-red, forms a series with **Ilmenite**, *Ilmenite* group

☐ **Pyrophyllite**, $Al_2Si_4O_{10}(OH)_2$, mon. and tric., polytype **-1*A***, compare **Ferripyrophyllite**

Pyrosmalite, any member of the series **Ferropyrosmalite-Manganpyrosmalite**

☐ **Pyrostilpnite**, Ag_3SbS_3, mon., red., dimorph. with **Pyrargyrite**

Pyroxene, see *Pyroxene* group

☐ **Pyroxferroite**, $(Fe^{2+},Mn^{2+},Ca)SiO_3$, tric., brown to yellow, forms a series with **Pyroxmangite**, **55**, 2137 (1970)

☐ **Pyroxmangite**, $Mn^{2+}SiO_3$, tric., forms a series with **Pyroxferroite**

☐ **Pyrrhotite**, $Fe_{1-x}S$, ($x = 0$–0.17), mon. and hex., 7 polytypes

Q

- **Qandilite**, $(Mg,Fe^{2+})_2(Ti,Fe^{2+},Al)O_4$, cub., *Spinel* group, **73**, 930 (1988)
- **Qilianshanite**, $NaHCO_3 \cdot H_3BO_3 \cdot 2H_2O$, mon., **79**, 765 (1994)
- **Qingheiite**, $Na_2NaMn_2^{2+}Mg_2(Al,Fe^{2+})_2(PO_4)_6$, mon., jade-green, compare **Ferrowyllieite**, **Rosemaryite**, **Wyllieite**, **69**, 567–568 (1984)
- **Qitianlingite**, $(Fe^{2+},Mn^{2+})_2(Nb,Ta)_2W^{6+}O_{10}$, orth., black, **73**, 1497 (1988)
- **Quadridavyne**, $[(Na,K)_6Cl_2](Ca_2Cl_2)(Si_6Al_6O_{24})$, hex., *Cancrinite* group, *Eur. J. Min.* **6**, 481–487 (1994)
- **Quadruphite**, $Na_{14}CaMgTi_4(Si_2O_7)_2(PO_4)_4O_4F_2$, tric., light brown, compare **Polyphite**, **Sobolevite**, and **Lomonosovite**, **78**, 1316 (1993)
- **Quartz**, SiO_2, trig., polymorph. with **Tridymite**, **Cristobalite**, **Coesite**, and **Stishovite**, isostructural with the phosphate **Berlinite**
- **Queitite**, $Pb_4Zn_2(SiO_4)(Si_2O_7)(SO_4)$, mon., pale yellow, **64**, 1331 (1979), **65**, 407 (1980)
- **Quenselite**, $PbMn^{3+}O_2(OH)$, mon., black
- **Quenstedtite**, $Fe_2^{3+}(SO_4)_3 \cdot 10H_2O$, tric., violet
- **Quetzalcoatlite**, $Zn_8Cu_4^{2+}(Te^{4+}O_3)_3(OH)_{18}$, hex., blue, **59**, 874 (1974)

☐ **Rabbittite**, $Ca_3Mg_3(UO_2)_2(CO_3)_6(OH)_4 \cdot 18H_2O$, mon., greenish-yellow, **40**, 201–206 (1955)

☐ **Rabejacite**, $Ca(UO_2)_4(SO_4)_2(OH)_6 \cdot 6H_2O$, orth., bright to amber yellow, **79**, 572 (1994)

☐ **Radhakrishnaite**, $PbTe_3(Cl,S)_2$, tet., **71**, 1545–1546 (1986)

☐ **Radtkeite**, Hg_2S_2ClI, orth., yellow-orange, **76**, 1715–1721 (1991)

☐ **Raguinite**, $TlFeS_2$, orth., ps. hex., bronze-colored, **54**, 1495 (1969)

☐ **Raite**, $Na_4Mn_4^{2+}Si_8(O,OH)_{24} \cdot 9H_2O$ (?), orth., gold to brown, **58**, 1113 (1973)

☐ **Rajite**, $Cu^{2+}Te_2^{4+}O_5$, mon., green, **64**, 1331 (1979)

☐ **Ralstonite**, $Na_xMg_xAl_{2-x}(F,OH)_6 \cdot H_2O$, cub., structurally related to the *Pyrochlore* group, **50**, 1851–1864 (1965)

☐ **Ramdohrite**, $Ag_3Pb_6Sb_{11}S_{24}$, mon., twinned, compare **Andorite**, **16**, 132 (1931), **39**, 161–171 (1954), **69**, 412 (1984), **70**, 219–220 (1985), **76**, 2020 (1991)

☐ **Rameauite**, $K_2CaU_6^{6+}O_{20} \cdot 9H_2O$, mon., orange, **58**, 805–806 (1973)

☐ **Rammelsbergite**, $NiAs_2$, orth., trimorph. with **Pararammelsbergite**, and **Krutovite**, *Löllingite* group

☐ **Ramsbeckite**, $(Cu^{2+},Zn)_{15}(SO_4)_4(OH)_{22} \cdot 6H_2O$, mon., green, **72**, 225 (1987), **74**, 505 (1989)

☐ **Ramsdellite**, $Mn^{4+}O_2$, orth., trimorph. with **Akhtenskite** and **Pyrolusite**, compare **Nsutite**, **Vernadite**, **47**, 47–58 (1962)

☐ **Rancieite**, $(Ca,Mn^{2+})Mn_4^{4+}O_9 \cdot 3H_2O$, hex., forms a series with **Takanelite**, **54**, 1741–1742 (1969)

☐ **Rankachite**, $CaFe^{2+}V_4^{5+}W_8^{6+}O_{36} \cdot 12H_2O$, orth., dark brown to brownish-yellow, **70**, 876 (1985)

☐ **Rankamaite**, $(Na,K,Pb,Li)_3(Ta,Nb,Al)_{11}(O,OH)_{30}$, orth., **55**, 1814 (1970)

☐ **Rankinite**, $Ca_3S_2O_7$, mon., dimorph. with **Kilchoanite**, **27**, 720 (1942)

☐ **Ransomite**, $Cu^{2+}Fe_2^{3+}(SO_4)_4 \cdot 6H_2O$, mon., sky-blue

☐ **Ranunculite**, $HAl(UO_2)PO_4(OH)_3 \cdot 4H_2O$, mon., ps. orth., gold-yellow, **65**, 407 (1980)

☐ **Rapidcreekite**, $Ca_2(SO_4)(CO_3) \cdot 4H_2O$, orth., **72**, 225 (1987)

☐ **Raspite**, $PbWO_4$, mon., brownish-yellow, dimorph. with **Stolzite**

☐ **Rasvumite**, KFe_2S_3, orth., **56**, 1121 (1971), **64**, 776–778 (1979)

☐ **Rathite**, $(Pb,Tl)_3As_5S_{10}$, mon.

☐ **Rauenthalite**, $Ca_3(AsO_4)_2 \cdot 10H_2O$, mon. or tric., **50**, 805 (1965)

☐ **Rauvite**, $Ca(UO_2)_2V_{10}^{5+}O_{28} \cdot 16H_2O$, purplish-black

☐ **Ravatite**, $C_{14}H_{10}$, mon., **79**, 389 (1994)

☐ **Rayite**, $(Ag,Tl)_2Pb_8Sb_8S_{21}$, mon., compare **Semseyite**, **69**, 211 (1984)

☐ **Realgar**, AsS, mon., orange-red, dimorph. with **Pararealgar**

☐ **Rebulite**, $Tl_5Sb_5As_8S_{22}$, mon., **68**, 644 (1983)

☐ **Rectorite**, a clay mineral, mon., 1:1 regular interstratification of a dioctahedral *Mica* and a dioctahedral *Smectite*, **67**, 394–398 (1982)

☐ **Reddingite**, $Mn_3^{2+}(PO_4)_2 \cdot 3H_2O$, orth., forms a series with **Phosphoferrite**

☐ **Redingtonite**, $(Fe^{2+},Mg,Ni)(Cr,Al)_2(SO_4)_4 \cdot 22H_2O$, mon., *Halotrichite* group

☐ **Redledgeite**, $BaTi_6Cr_2^{3+}O_{16} \cdot H_2O$, tet., compare **Mannardite**, *Cryptomelane* group, **46**, 1201 (1961), **73**, 198 (1988)

☐ **Reedmergnerite**, $NaBSi_3O_8$, tric., *Feldspar* group, **45**, 188–199 (1960)

☐ **Reevesite**, $Ni_6Fe_2^{3+}(CO_3)(OH)_{16} \cdot 4H_2O$, trig., yellow to greenish-yellow, *Hydrotalcite* group, **52**, 1190–1197 (1967)

☐ **Refikite**, $C_{20}H_{32}O_2$, (δ-13-dihydro-d-pimaric acid), orth., **50**, 2110 (1965)

☐ **Reichenbachite**, $Cu_5^{2+}(PO_4)_2(OH)_4$, mon., dark green, trimorph. with **Ludjibaite** and **Pseudomalachite**, **72**, 404–405 (1987)

☐ **Reinerite**, $Zn_3(As^{3+}O_3)_2$, orth., green to blue, **44**, 207 (1959)

☐ **Reinhardbraunsite**, $Ca_5(SiO_4)_2(OH,F)_2$, mon., **68**, 1039–1040 (1983)

☐ **Remondite-(Ce)**, $Na_3(Ce,La,Ca,Na,Sr)_3(CO_3)_5$, mon., ps. hex., red-orange, compare **Burbankite**, **Khanneshite**, **75**, 433 (1990)

Renardite, $Pb(UO_2)_4(PO_4)_2(OH)_4 \cdot 7H_2O$, orth., yellow (probably = **Dewindtite**), **39**, 448–451 (1954)

☐ **Renierite**, $(Cu,Zn)_{11}(Ge,As)_2Fe_4S_{16}$, tet., ps. cub., **38**, 794–801 (1953), **71**, 210–221 (1986), **74**, 1177–1181 (1989)

☐ **Reppiaite**, $Mn_5^{2+}(OH)_4(VO_4)_2$, mon., orange-red, isostructural with **Arsenoclasite**, *Zeit. Krist.* **201**, 223–234 (1992) (Eng.), **78**, 452 (1993)

☐ **Retgersite**, $NiSO_4 \cdot 6H_2O$, tet., dimorph. with **Nickelhexahydrite**, blue-green, **34**, 188–194 (1949)

☐ **Retzian-(Ce)**, $Mn_2^{2+}Ce(AsO_4)(OH)_4$, orth., brown, **52**, 1603–1613 (1967), **67**, 841–845 (1982)

☐ **Retzian-(La)**, $(Mn^{2+},Mg)_2(La,Ce,Nd)(AsO_4)(OH)_4$, orth., dark reddish-brown, **70**, 1332 (1985)

☐ **Retzian-(Nd)**, $Mn_2^{2+}(Nd,Ce,La)(AsO_4)(OH)_4$, orth., pinkish-brown to reddish-brown, **67**, 841–845 (1982)

☐ **Revdite**, $Na_{16}[Si_4O_6(OH)_5]_2[Si_8O_{15}(OH)_6](OH)_{10} \cdot 28H_2O$, mon., **67**, 1076 (1982), **78**, 1112 (1993)

☐ **Reyerite**, $(Na,K)_2Ca_{14}(Si,Al)_{24}O_{58}(OH)_8 \cdot 6H_2O$, trig., compare **Minehillite**, **Truscottite**, **58**, 517–522 (1973), *Min. Mag.* **52**, 247–256 (1988)

Rezbanyite, a mixt. of **Hammarite**, **Krupkaite**, and **Cosalite**, **77**, 1308–1309 (1992)

Rhabdite = **Schreibersite**

Rhabdophane, see *Rhabdophane* group

☐ **Rhabdophane-(Ce)**, $(Ce,La)PO_4 \cdot H_2O$, hex., *Rhabdophane* group, **65**, 1065 (1980)

☐ **Rhabdophane-(La)**, $(La,Ce)PO_4 \cdot H_2O$, hex., *Rhabdophane* group

☐ **Rhabdophane-(Nd)**, $(Nd,Ce,La)PO_4 \cdot H_2O$, hex., *Rhabdophane* group

Rhenium, Re, **63**, 1283–1284 (1978)

☐ **Rhodesite**, $KHCa_2Si_8O_{19} \cdot 5H_2O$, orth., **43**, 624 (1958), **77**, 1308 (1992)

☐ **Rhodium**, (Rh,Pt), cub., **61**, 340 (1976)

☐ **Rhodizite**, $(K,Cs)Al_4Be_4(B,Be)_{12}O_{28}$, cub., **51**, 533–534 (1966), **72**, 1028 (1987)

☐ **Rhodochrosite**, $Mn^{2+}CO_3$, trig., forms two series, with **Calcite**, and with **Siderite**, *Calcite* group

☐ **Rhodonite**, $(Mn^{2+},Fe^{2+},Mg,Ca)SiO_3$, tric., pink

☐ **Rhodostannite**, $Cu_2FeSn_3S_8$, tet., compare **Toyohaite**, **54**, 1218 (1969)

☐ **Rhodplumsite**, $Pb_2Rh_3S_2$, trig., compare **Parkerite**, **Shandite**

☐ **Rhomboclase**, $HFe^{3+}(SO_4)_2 \cdot 4H_2O$, orth.

☐ **Rhönite**, $Ca_2(Fe^{2+},Fe^{3+},Mg,Ti)_6(Si,Al)_6O_{20}$, tric., *Aenigmatite* group, **55**, 864–874 (1970)

☐ **Ribbeite**, $(Mn^{2+},Mg)_5(SiO_4)_2(OH)_2$, orth., dimorph. with **Alleghanyite**, *Humite* group, **72**, 213–216 (1987), **78**, 190–194 (1993)

☐ **Richellite**, $Ca_3Fe^{3+}_{10}(PO_4)_8(OH,F)_{12} \cdot nH_2O$ (?), amor.

☐ **Richelsdorfite**, $Ca_2Cu^{2+}_5Sb^{5+}(AsO_4)_4Cl(OH)_6 \cdot 6H_2O$, mon., blue, **69**, 211 (1984)

☐ **Richetite**, $PbU^{6+}_4O_{13} \cdot 4H_2O$, tric., black, **33**, 384 (1948), **70**, 1335 (1985)

☐ **Richterite**, $Na_2Ca(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Ferrorichterite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Rickardite**, Cu_7Te_5, orth., ps. tet.

☐ **Riebeckite**, $Na_2(Fe^{2+},Mg)_3Fe_2^{3+}Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, $Fe^{3+}/(Fe^{3+} + Al) = 0.7–1.0$, forms a series with **Magnesioriebeckite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Rilandite**, $(Cr^{3+},Al)_6SiO_{11}\cdot 5H_2O$ (?), dark brown, **18**, 195–215 (1933)

☐ **Ringwoodite**, $(Mg,Fe^{2+})_2SiO_4$, cub. (**Spinel** structure type), trimorph. with **Forsterite** and **Wadsleyite**, **54**, 1219 (1969)

☐ **Rinkite**, $(Ca,Ce)_4Na(Na,Ca)_2Ti(Si_2O_7)_2F_2(O,F)_2$, mon., compare **Nacareniobsite-(Ce)**, **77**, 674 (1992)

Rinkolite = **Rinkite**

☐ **Rinneite**, $K_3NaFe^{2+}Cl_6$, trig.

Ripidolite = ferroan **Clinochlore**

☐ **Rittmannite**, $(Mn^{2+},Ca)Mn^{2+}(Fe^{2+},Mn^{2+})_2(Al,Fe^{3+})_2(PO_4)_4(OH)_2\cdot 8H_2O$, mon., ps. hex., pale yellow, *Whiteite* group, **75**, 932–933 (1990)

☐ **Rivadavite**, $Na_6MgB_{24}O_{40}\cdot 22H_2O$, mon., **52**, 326–335 (1967)

☐ **Riversideite**, $Ca_5Si_6O_{16}(OH)_2\cdot 2H_2O$, **39**, 1038 (1954)

☐ **Roaldite**, Fe_4N, cub., **66**, 1100 (1981)

☐ **Robertsite**, $Ca_2Mn_3^{3+}(PO_4)_3O_2\cdot 3H_2O$, mon., dimorph. with **Pararobertsite**, compare **Arseniosiderite**, **Mitridatite**, **59**, 48–59 (1974)

☐ **Robinsonite**, $Pb_4Sb_6S_{13}$, mon., **37**, 438–446 (1952), *Can. Min.* **13**, 321–335 (1975), *Min. Abs.* **42**, 152 (1991)

☐ **Rockbridgeite**, $(Fe^{2+},Mn^{2+})Fe_4^{3+}(PO_4)_3(OH)_5$, orth., dark green, forms a series with **Frondelite**, **34**, 513–540 (1949)

Rock salt = **Halite**

☐ **Rodalquilarite**, $H_3Fe_2^{3+}(Te^{4+}O_3)_4Cl$, tric., emerald-green, **53**, 2104–2105 (1968)

☐ **Roeblingite**, $Pb_2Ca_6Mn^{2+}(Si_6O_{18})(SO_4)_2(OH)_2{\cdot}4H_2O$, mon., **16**, 455 (1931), **51**, 504–508 (1966), **69**, 1173–1179 (1984)

☐ **Roedderite**, $(Na,K)_2(Mg,Fe^{2+})_5Si_{12}O_{30}$, hex., forms a series with **Eifelite**, *Osumilite* group, **51**, 949–955 (1966)

Roentgenite = **Röntgenite-(Ce)**

Roepperite = ferroan **Tephroite** or manganoan zincian **Fayalite**

Roesslerite, see **Rösslerite**

☐ **Roggianite**, $Ca_2Be(OH)_2Al_2Si_4O_{13}{\cdot}2.5H_2O$, tet., related to the *Zeolite* group, **54**, 1741 (1969), **68**, 852 (1983), **74**, 505 (1989), *Neues Jahrb. Mineral., Monatsh.* 1991, 307–314, **77**, 452 (1992)

☐ **Rohaite**, $TlCu_5SbS_2$, orth., **65**, 208–209 (1980)

☐ **Rokühnite**, $Fe^{2+}Cl_2{\cdot}2H_2O$, mon., **66**, 219 (1981)

☐ **Romanechite**, $(Ba,H_2O)(Mn^{4+},Mn^{3+})_5O_{10}$, mon., **73**, 1155–1161 (1988)

Romanite, $(U,Pb)(Ti,Fe^{2+},Fe^{3+})_2O_{38}$, trig., related to the *Crichtonite* group

☐ **Romarchite**, SnO, tet. (an artifact (?)), **57**, 1555 (1972)

☐ **Romeite**, $(Ca,Fe^{2+},Mn^{2+},Na)_2(Sb,Ti)_2O_6(O,OH,F)$, cub., *Stibiconite* group

☐ **Römerite**, $Fe^{2+}Fe_2^{3+}(SO_4)_4{\cdot}14H_2O$, tric.

☐ **Röntgenite-(Ce)**, $Ca_2(Ce,La)_3(CO_3)_5F_3$, trig., **38**, 868–870, 932–963 (1953)

☐ **Rooseveltite**, $BiAsO_4$, mon., dimorph. with **Tetraroosevelt**ite, *Monazite* group, **32**, 372 (1947)

☐ **Roquesite**, $CuInS_2$, tet., *Chalcopyrite* group, **48**, 1178 (1963)

☐ **Rorisite**, CaFCl, tet., **76**, 1731 (1991)

☐ **Rosasite**, $(Cu^{2+},Zn)_2(CO_3)(OH)_2$, mon., green to blue, *Rosasite* group

☐ **Roscherite**, $Ca(Mn^{2+},Fe^{2+})_2Be_3(PO_4)_3(OH)_3 \cdot 2H_2O$, mon. and tric., **43**, 824–838 (1958), **63**, 427 (1978), compare **Zanazziite**

☐ **Roscoelite**, $K(V^{3+},Al,Mg)_2(AlSi_3)O_{10}(OH)_2$, mon., *Mica* group

☐ **Roselite**, $Ca_2(Co^{2+},Mg)(AsO_4)_2 \cdot 2H_2O$, mon., pink, dimorph. with **Roselite-beta**, forms a series with **Wendwilsonite**, *Roselite* group

☐ **Roselite-beta**, $Ca_2Co(AsO_4)_2 \cdot 2H_2O$, tric., dark rose-red, dimorph. with **Roselite**, *Fairfieldite* group, **40**, 828–833 (1955)

☐ **Rosemaryite**, $(Na,Ca,Mn^{2+})(Mn^{2+},Fe^{2+})(Fe^{3+},Fe^{2+},Mg)Al(PO_4)_3$, mon., forms two series, with **Wyllieite**, and with **Ferrowyllieite**, compare **Qingheiite**, **65**, 810–811 (1980)

☐ **Rosenbergite**, $AlF_3 \cdot 3H_2O$, tet., **79**, 765 (1994)

☐ **Rosenbuschite**, $(Ca,Na)_3(Zr,Ti)Si_2O_8F$, tric.

☐ **Rosenhahnite**, $Ca_3Si_3O_8(OH)_2$, tric., **52**, 336–351 (1967)

☐ **Roshchinite**, $Ag_{19}Pb_{10}Sb_{51}S_{96}$, orth.

☐ **Rosickyite**, S, γ-sulfur, mon., light yellow, dimorph. with **Sulfur**

☐ **Rosieresite**, amor., hydrous phosphate of Pb, Cu, and Al

☐ **Rossite**, $CaV_2^{5+}O_6 \cdot 4H_2O$, tric., yellow, **13**, 160 (1928)

☐ **Rösslerite**, $MgHAsO_4 \cdot 7H_2O$, mon., compare **Phosphorrösslerite**

☐ **Rostite**, $Al(SO_4)(OH,F) \cdot 5H_2O$, orth., dimorph. with **Jurbanite**, compare **Khademite**, **60**, 486 (1975), **64**, 1331 (1979), **74**, 1951 (1989)

☐ **Roubaultite**, $Cu_2^{2+}(UO_2)_3(CO_3)_2O_2(OH)_2 \cdot 4H_2O$, tric., green, **57**, 1912 (1972)

☐ **Rouseite**, $Pb_2Mn^{2+}(As^{3+}O_3)_2 \cdot 2H_2O$, tric., orange-yellow, **71**, 1034–1036 (1986)

☐ **Routhierite**, $(Tl,Cu)Hg(As,Sb)S_3$, tet., compare **Stalderite**, **60**, 947 (1975), **75**, 935–936 (1990)

☐ **Rouvilleite**, $Na_3Ca_3(CO_3)_3F$, mon., cols. to brown, *Can. Min.* **29**, 107–111 (1991), **76**, 2023 (1991)

☐ **Roweite**, $Ca_2Mn^{2+}_5B_4O_7(OH)_6$, orth., forms a series with **Fedorovskite**, **22**, 301–303 (1937), **59**, 60–70 (1974)

☐ **Rowlandite-(Y)**, $Y_4Fe^{2+}Si_4O_{14}F_2$ (?), amor.

☐ **Roxbyite**, Cu_9S_5, mon., **74**, 947 (1989)

☐ **Rozenite**, $Fe^{2+}SO_4 \cdot 4H_2O$, mon., *Rozenite* group, **49**, 820 (1964)

☐ **Ruarsite**, RuAsS, mon., *Arsenopyrite* group, **65**, 1068–1069 (1980)

Rubellite = pink **Elbaite**

Ruby = a red gem var. of **Corundum**

Ruby silver, see **Proustite**, **Pyrargyrite**

☐ **Rucklidgeite**, $(Bi,Pb)_3Te_4$, trig., **63**, 599 (1978), **76**, 257–265 (1991)

☐ **Ruitenbergite**, $Ca_9B_{26}O_{34}(OH)_{24}Cl_4 \cdot 13H_2O$, mon., cols. to orange, dimorph. with **Pringleite**, *Can. Min.* **31**, 795–800 (1993)

☐ **Ruizite**, $CaMn^{3+}Si_2O_6(OH) \cdot 2H_2O$, mon., orange to brown, **63**, 794–795 (1978)

☐ **Rusakovite**, $(Fe^{3+},Al)_5(VO_4,PO_4)_2(OH)_9 \cdot 3H_2O$, yellow, **45**, 1316 (1960)

☐ **Russellite**, Bi_2WO_6, orth., isostructural with **Koechlinite**, **23**, 121 (1938), **78**, 454 (1993)

☐ **Rustenburgite**, $(Pt,Pd)_3Sn$, cub., compare **Atokite**, **61**, 340 (1976)

☐ **Rustumite**, $Ca_{10}(Si_2O_7)_2(SiO_4)Cl_2(OH)_2$, mon., **50**, 2104 (1965), **64**, 659 (1979)

☐ **Ruthenarsenite**, (Ru,Ni)As, orth., **61**, 177 (1976)

☐ **Rutheniridosmine**, (Ir,Os,Ru) with Ir dominant, hex., *Can. Min.* **29**, 231–237 (1991)

☐ **Ruthenium**, Ru, hex., **60**, 946 (1975), **61**, 177 (1976)

Ruthenosmiridium = **Iridium**, *Can. Min.* **29**, 231–237 (1991)

☐ **Rutherfordine**, $UO_2(CO_3)$, orth., yellow, **41**, 127–133 (1956)

☐ **Rutile**, TiO_2, tet., trimorph. with **Anatase** and **Brookite**, *Rutile* group

☐ **Rynersonite**, $Ca(Ta,Nb)_2O_6$, orth., compare **Aeschynite-(Ce)**, **Vigezzite**, **63**, 709–714 (1978)

☐ **Sabatierite**, $TlCu_4Se_3$, orth., **64**, 1331–1332 (1979)

☐ **Sabieite**, $(NH_4)Fe^{3+}(SO_4)_2$, trig., **71**, 229 (1986)

☐ **Sabinaite**, $Na_4Zr_2TiO_4(CO_3)_4$, mon., **66**, 1277 (1981), **71**, 231 (1986)

☐ **Sabugalite**, $H_{0.5}Al_{0.5}(UO_2)_2(PO_4)_2 \cdot 8H_2O$, mon., ps. tet., yellow, *Autunite* group, **36**, 671–679 (1951)

☐ **Sacrofanite**, $(Na,Ca,K)_9(Si,Al)_{12}O_{24}[(OH)_2,(SO_4),(CO_3),Cl_2]_3 \cdot nH_2O$, hex., *Cancrinite* group, **66**, 1100 (1981)

☐ **Sadanagaite**, $(K,Na)Ca_2(Fe^{2+},Mg,Al,Fe^{3+},Ti)_5(Si,Al)_8O_{22}(OH)_2$, mon., dark brown to black, forms a series with **Magnesiosadanagaite**, *Amphibole* group, **69**, 465–467 (1984)

☐ **Safflorite**, $(Co,Fe)As_2$, orth., dimorph. with **Clinosafflorite**, *Löllingite* group, **53**, 1856–1881 (1968)

☐ **Sahamalite-(Ce)**, $(Mg,Fe^{2+})Ce_2(CO_3)_4$, mon., **38**, 741–754 (1953)

☐ **Sahlinite**, $Pb_{14}(AsO_4)_2O_9Cl_4$, mon., yellow, compare **Kombatite**, **20**, 315 (1935)

Sahlite = Salite

☐ **Sainfeldite**, $Ca_5(AsO_4)_2(AsO_3OH)_2 \cdot 4H_2O$, mon., **50**, 806 (1965), compare **Hureaulite**, **Villyaellenite**

☐ **Sakhaite**, $Ca_3Mg(BO_3)_2(CO_3) \cdot nH_2O$, $(n < 1)$, cub., compare **Harkerite**, **51**, 1817 (1966)

☐ **Sakharovaite**, $(Pb,Fe)(Bi,Sb)_2S_4$, mon., **41**, 814 (1956), **45**, 1134 (1960)

☐ **Sakuraiite**, $(Cu,Zn,Fe)_3(In,Sn)S_4$, tet., **53**, 1421 (1968), **73**, 934 (1988)

☐ **Sal ammoniac**, NH_4Cl, cub.

☐ **Saleeite**, $Mg(UO_2)_2(PO_4)_2 \cdot 10H_2O$, mon., ps. tet., yellow, *Autunite* group, **19**, 36 (1934)

☐ **Salesite**, $Cu^{2+}(IO_3)(OH)$, orth., bluish-green, **24**, 388–392 (1939)

☐ **Saliotite**, $Li_{0.5}Na_{0.5}Al_3Si_3AlO_{10}(OH)_5$, mon., a regular 1:1 ordered interstratification of **Cookeite** and **Paragonite**, a **-1*M*** polytype

Salite, a var. of **Diopside**

Saltpeter = **Niter**

☐ **Samarskite**, $(Fe^{3+},Y,Fe^{2+},U,REE)(Nb,Ta)O_4$, mon., **70**, 856–866 (1985), **78**, 195–203 (1993)

☐ **Samfowlerite**, $Ca_{28}Mn_6Zn_4(Be,Zn)_4Be_{12}(SiO_4)_{12}(Si_2O_7)_8(OH)_{12}$, mon., *Can. Min.* **32**, 43–53 (1994)

Samiresite = plumboan **Uranpyrochlore** (?), **51**, 1551 (1966), **62**, 407 (1977)

☐ **Sampleite**, $NaCaCu_5^{2+}(PO_4)_4Cl{\cdot}5H_2O$, orth., blue, compare **Lavendulan**, **27**, 586–588 (1942)

☐ **Samsonite**, $Ag_4MnSb_2S_6$, mon.

☐ **Samuelsonite**, $(Ca,Ba)Ca_8(Fe^{2+},Mn^{2+})_4Al_2(PO_4)_{10}(OH)_2$, mon., **60**, 957–964 (1975), **62**, 229–245 (1977)

☐ **Sanbornite**, $BaSi_2O_5$, orth., **17**, 161–172 (1932)

☐ **Sanderite**, $MgSO_4{\cdot}2H_2O$, **37**, 1072 (1952)

☐ **Saneroite**, $Na_2(Mn^{2+},Mn^{3+})_{10}Si_{11}VO_{34}(OH)_4$, tric., deep orange, **66**, 1277–1278 (1981)

☐ **Sanidine**, a mon. K-Na feldspar with disordered Al-Si arrangement, *Feldspar* group

☐ **Sanjuanite**, $Al_2(PO_4)(SO_4)(OH){\cdot}9H_2O$, mon. (?), **53**, 1–8 (1968)

☐ **Sanmartinite**, $(Zn,Fe^{2+})WO_4$, mon., compare **Ferberite**, **Hübnerite**, **33**, 653 (1948)

☐ **Santaclaraite**, $CaMn_4^{2+}Si_5O_{14}(OH)_2{\cdot}H_2O$, tric., pink to reddish-orange, **66**, 154–168 (1981), **69**, 200–206 (1984)

☐ **Santafeite**, $(Na,Ca,Sr)_3(Mn^{2+},Fe^{3+})_2Mn_2^{4+}(VO_4)_3(OH,O)_5 \cdot 2H_2O$, orth., black, **43**, 677–687 (1958), **72**, 1028 (1987)

☐ **Santanaite**, $9PbO \cdot 2PbO_2 \cdot CrO_3$, hex., straw-yellow, **58**, 966 (1973)

☐ **Santite**, $KB_5O_6(OH)_4 \cdot 2H_2O$, orth., **56**, 636 (1971)

☐ **Saponite**, $(Ca/2,Na)_{0.3}(Mg,Fe^{2+})_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$, mon., *Smectite* group

Sapphire = a gem var. of **Corundum**

☐ **Sapphirine**, $(Mg,Al)_8(Al,Si)_6O_{20}$, mon., tric., polytypes **-1*A***, **-2*A***, **-2*M***, **-4*M***, **-5*A***, **59**, 632 (1974), **75**, 937 (1990)

☐ **Sarabauite**, $CaSb_{10}O_{10}S_6$, mon., carmine-red, **63**, 715–719 (1978)

☐ **Sarcolite**, $NaCa_6Al_4Si_6O_{24}F$ (?), **64**, 245 (1979), **70**, 441 (1985)

☐ **Sarcopside**, $(Fe^{2+},Mn^{2+},Mg)_3(PO_4)_2$, mon., **57**, 24–35 (1972)

Sard, a var. of **Quartz**

☐ **Sarkinite**, $Mn_2^{2+}(AsO_4)(OH)$, mon., red

☐ **Sarmientite**, $Fe_2^{3+}(AsO_4)(SO_4)(OH) \cdot 5H_2O$, mon., yellow-orange, compare **Diadochite**, **53**, 2077–2082 (1968)

☐ **Sartorite**, $PbAs_2S_4$, mon.

☐ **Saryarkite-(Y)**, $Ca(Y,Th)Al_5(SiO_4)_2(PO_4,SO_4)_2(OH)_7 \cdot 6H_2O$, hex, **49**, 1775 (1964)

☐ **Sasaite**, $(Al,Fe^{3+})_{14}(PO_4)_{11}(SO_4)(OH)_7 \cdot 83H_2O$ (?), orth., **64**, 464–465 (1979)

☐ **Sassolite** (boric acid), H_3BO_3, tric.

☐ **Satimolite**, $KNa_2Al_4B_6O_{15}Cl_3 \cdot 13H_2O$, orth., **55**, 1069–1070 (1970)

☐ **Satpaevite**, $Al_{12}V_2^{4+}V_6^{5+}O_{37} \cdot 30H_2O$, orth. (?), greenish-yellow, **44**, 1325 (1959)

☐ **Satterlyite**, $(Fe^{2+},Mg,Fe^{3+})_2(PO_4)(OH)$, hex., dimorph. with **Wolfeite**, compare **Holtedahlite**, **64**, 657–658 (1979)

☐ **Sauconite**, $Na_{0.3}Zn_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$, mon., *Smectite* group, **31**, 411–424 (1946)

☐ **Sayrite**, $Pb_2(UO_2)_5O_6(OH)_2 \cdot 4H_2O$, mon, yellowish- to reddish-orange, **69**, 568 (1984)

☐ **Sazhinite-(Ce)**, $Na_2CeSi_6O_{14}(OH) \cdot nH_2O$, (n ca. 5), orth., **60**, 162 (1975)

☐ **Sborgite**, $NaB_5O_6(OH)_4 \cdot 3H_2O$, mon., **43**, 378 (1958)

☐ **Scacchite**, $MnCl_2$, trig., rose-red

Scapolite, see *Scapolite* group

☐ **Scarbroite**, $Al_5(OH)_{13}(CO_3) \cdot 5H_2O$, hex., **43**, 384 (1958), *Min. Mag.* **43**, 615–618 (1980)

☐ **Scawtite**, $Ca_7(Si_6O_{18})(CO_3) \cdot H_2O$, mon., **40**, 505–509 (1955), **79**, 391 (1994)

☐ **Schachnerite**, $Ag_{1.1}Hg_{0.9}$, hex., **58**, 347 (1973)

☐ **Schafarzikite**, $Fe^{2+}Sb_2^{3+}O_4$, tet., red to reddish-brown, compare **Trippkeite**, **37**, 136 (1952)

☐ **Schairerite**, $Na_{21}(SO_4)_7F_6Cl$, trig., **16**, 133–139 (1931), **56**, 174–178 (1971)

☐ **Schallerite**, $(Mn^{2+},Fe^{2+})_{16}Si_{12}As_3^{3+}O_{36}(OH)_{17}$, trig., dimorph. with **Nelenite**, **10**, 9–11 (1925), **66**, 1054–1062 (1981)

☐ **Schaurteite**, $Ca_3Ge^{4+}(SO_4)_2(OH)_6 \cdot 3H_2O$, hex., compare **Despujolsite**, **Fleischerite**, **52**, 926 (1967)

☐ **Scheelite**, $CaWO_4$, tet., forms a series with **Powellite**, compare **Paranite-(Y)**

Schefferite = manganoan **Aegirine**, $(Na,Ca)(Fe^{3+},Mn^{3+})Si_2O_6$, *Pyroxene* group

☐ **Schertelite**, $(NH_4)_2MgH_2(PO_4)_2 \cdot 4H_2O$, orth., **48**, 635–641 (1963)

Scheteligite, $(Ca,Y,Sb,Mn)_2(Ti,Ta,Nb,W)_2O_6(O,OH)$, orth. (?), **23**, 293 (1938)

☐ **Schieffelinite**, $Pb(Te^{6+},S)O_4 \cdot H_2O$, orth., **66**, 219 (1981)

☐ **Schirmerite**, $Ag_3Pb_3Bi_9S_{18}$ to $Ag_3Pb_6Bi_7S_{18}$, orth., **59**, 384 (1974), **64**, 243–244 (1979)

Schizolite = manganoan **Pectolite**, **40**, 1022–1031 (1955)

☐ **Schlossmacherite**, $(H_3O,Ca)Al_3(AsO_4,SO_4)_2(OH)_6$, trig., *Beudantite* group, **65**, 1069 (1980)

☐ **Schmiederite** (Schmeiderite), $Pb_2Cu_2^{2+}(Se^{4+}O_3)(Se^{6+}O_4)(OH)_4$, mon., compare **Linarite**, **49**, 1498 (1964), **73**, 199 (1987)

☐ **Schmitterite**, $(UO_2)TeO_3$, orth., yellow, **56**, 411–415 (1971)

☐ **Schneiderhöhnite**, $Fe^{2+}Fe_3^{3+}As_5^{3+}O_{13}$, tric., dark brown, **59**, 1139 (1974), **72**, 1028 (1987)

☐ **Schoderite**, $Al_2(PO_4)(VO_4) \cdot 8H_2O$, mon., yellow-orange, **47**, 637–648 (1962)

☐ **Schoenfliesite**, $MgSn^{4+}(OH)_6$, cub., *Schoenfliesite* group, **57**, 1557 (1972)

☐ **Schoepite**, $UO_3 \cdot 2H_2O$, orth., yellow, **45**, 1026–1061 (1960)

☐ **Schöllhornite**, $Na_{0.3}CrS_2 \cdot H_2O$, trig., **70**, 638–643 (1985)

☐ **Scholzite**, $CaZn_2(PO_4)_2 \cdot 2H_2O$, orth., dimorph. with **Parascholzite**, **36**, 382 (1951), **46**, 1519 (1961), **66**, 843–851 (1981)

☐ **Schoonerite**, $Fe_2^{2+}ZnMn^{2+}Fe^{3+}(PO_4)_3(OH)_2 \cdot 9H_2O$, orth., brown, **62**, 246–255 (1977)

☐ **Schorl**, $NaFe_3^{2+}Al_6(BO_3)_3Si_6O_{18}(OH)_4$, trig., black, forms a series with **Dravite**, *Tourmaline* group

☐ **Schorlomite**, $Ca_3Ti_2^{4+}(Fe_2^{3+}Si)O_{12}$, cub., black, forms a series with **Andradite**, *Garnet* group

☐ **Schreibersite** (Rhabdite), $(Fe,Ni)_3P$, tet.

☐ **Schreyerite**, $V_2^{3+}Ti_3O_9$, mon., reddish-brown, dimorph. with **Kyzylkumite**, **62**, 395 (1977), **63**, 1182–1186 (1978)

☐ **Schröckingerite**, $NaCa_3(UO_2)(CO_3)_3(SO_4)F{\cdot}10H_2O$, tric., greenish-yellow, **33**, 152–157 (1948), **44**, 1020–1025 (1959)

☐ **Schubnelite**, $Fe^{3+}_{2-x}(V^{5+},V^{4+})_2O_4(OH)_4$, tric., black, **57**, 1556 (1972), **75**, 508–521 (1990)

Schuchardtite, nickeloan **Clinochlore** or a Ni-rich **Vermiculite-Chlorite**, green, **64**, 1334 (1979)

☐ **Schuetteite**, $Hg_3(SO_4)O_2$, hex., **44**, 1026–1038 (1959)

☐ **Schuilingite-(Nd)**, $PbCu^{2+}(Nd,Gd,Sm,Y)(CO_3)_3(OH){\cdot}1.5H_2O$, orth., azure-blue, **43**, 796 (1958)

☐ **Schulenbergite**, $(Cu^{2+},Zn)_7(SO_4,CO_3)_2(OH)_{10}{\cdot}3H_2O$, trig., light greenish-blue, **70**, 438 (1985)

☐ **Schultenite**, $PbHAsO_4$, mon., **12**, 296 (1927)

☐ **Schumacherite**, $Bi_3[(V^{5+},As,P)O_4]_2O(OH)$, tric., yellow, compare **Preisingerite** and **Petitjeanite**, **70**, 438 (1985)

☐ **Schwartzembergite**, $Pb_6(IO_3)_2Cl_4O_2(OH)_2$, orth., ps. tet.

Schwatzite (Schwazite) = mercurian **Tetrahedrite**

☐ **Sclarite**, $(Zn,Mg,Mn^{2+})_4Zn_3(CO_3)_2(OH)_{10}$, mon., compare **Loseyite**, **74**, 1355–1359 (1989)

☐ **Scolecite**, $CaAl_2Si_3O_{10}{\cdot}3H_2O$, mon., *Zeolite* group

☐ **Scorodite**, $Fe^{3+}AsO_4{\cdot}2H_2O$, orth., green, forms a series with **Mansfieldite**, *Variscite* group

☐ **Scorzalite**, $(Fe^{2+},Mg)Al_2(PO_4)_2(OH)_2$, mon., deep blue, forms a series with **Lazulite**, *Lazulite* group, **34**, 83–93, 685–687 (1949)

☐ **Scotlandite**, $PbSO_3$ (a sulfite), mon., compare **Molybdomenite**, **70**, 876 (1985)

☐ **Scrutinyite**, alpha-PbO_2, orth., dimorph. with **Plattnerite**, dark reddish-brown, **75**, 710–711 (1990)

☐ **Seamanite**, $Mn_3^{2+}(PO_4)B(OH)_6$, orth., yellow, **15**, 220–225 (1930), **56**, 1527–1538 (1971)

☐ **Searlesite**, $NaBSi_2O_5(OH)_2$, mon., **61**, 123–129 (1976)

☐ **Sederholmite**, β-NiSe, hex., *Nickeline* group, **50**, 519 (1965)

☐ **Sedovite**, $U^{4+}(MoO_4)_2$, orth., **51**, 530 (1966)

☐ **Seeligerite**, $Pb_3Cl_3(IO_3)O$, orth., bright yellow, **57**, 327–328 (1972)

☐ **Seelite**, $Mg(UO_2)(AsO_3)_{0.7}(AsO_4)_{0.3}\cdot 7H_2O$, mon., canary yellow to bright yellow, *Mineral. Rec.* **24**, 463–467 (1993)

☐ **Segelerite**, $CaMgFe^{3+}(PO_4)_2(OH)\cdot 4H_2O$, orth., pale green, *Overite* group, **59**, 48–59 (1974)

☐ **Segnitite**, $PbFe_3^{3+}H(AsO_4)_2(OH)_6$, trig., greenish- to yellowish-brown, **77**, 656–659 (1992)

☐ **Seidozerite**, $(Na,Ca)_2(Zr,Ti,Mn)_2Si_2O_7(O,F)_2$, mon., **44**, 467 (1959)

☐ **Seinäjokite**, (Fe,Ni)(Sb,As)$_2$, orth., *Löllingite* group, **62**, 1059–1060 (1977)

☐ **Sekaninaite**, $(Fe^{2+},Mg)_2Al_4Si_5O_{18}$, orth., blue, forms a series with **Cordierite**, **62**, 395 (1977)

Selenite = **Gypsum**

☐ **Selenium**, Se, trig.

Selenolite = **Olsacherite** (probably), formerly thought to be SeO_2, **62**, 316–320 (1977)

☐ **Selenostephanite**, $Ag_5Sb(Se,S)_4$, orth., compare **Stephanite**

Selen-tellurium, a mixt. of **selenium** and **tellurium**, **76**, 257–265 (1991)

☐ **Seligmannite**, $PbCuAsS_3$, orth., forms a series with **Bournonite**, compare **Soucekite**

☐ **Sellaite**, MgF_2, tet., structurally related to the *Rutile* group

☐ **Semenovite**, $(Ca,Ce,La,Na)_{10-12}(Fe^{2+},Mn)(Si,Be)_{20}(O,OH,F)_{48}$, orth., **58**, 1114 (1973), **64**, 202–210 (1979)

☐ **Semseyite**, $Pb_9Sb_8S_{21}$, mon., compare **Rayite**

☐ **Senaite**, $Pb(Ti,Fe,Mn)_{21}O_{38}$, trig., black, *Crichtonite* group, **53**, 869–877 (1968), **61**, 1203–1212 (1976)

☐ **Senarmontite**, Sb_2O_3, cub., dimorph. with **Valentinite**, compare **Arsenolite**

☐ **Senegalite**, $Al_2(PO_4)(OH)_3 \cdot H_2O$, orth., **62**, 595–596 (1977), **64**, 1243–1247 (1979)

☐ **Sengierite**, $Cu_2(UO_2)_2V_2O_8 \cdot 6H_2O$, mon., yellow-green, **34**, 109–120 (1949), **66**, 220 (1981)

☐ **Sepiolite**, $Mg_4Si_6O_{15}(OH)_2 \cdot 6H_2O$, orth., compare **Falcondoite**

☐ **Serandite**, $Na(Mn^{2+},Ca)_2Si_3O_8(OH)$, tric., pink, forms a series with **Pectolite**

☐ **Serendibite**, $Ca_2(Mg,Al)_6(Si,Al,B)_6O_{20}$, tric., blue, *Aenigmatite* group

☐ **Sergeevite**, $Ca_2Mg_{11}(CO_3)_{13-x}(HCO_3)_x(OH)_x \cdot (10-x)H_2O$ (?), trig., (= **Huntite** (?)), **66**, 1100 (1981)

Sericite, a fine-grained member of the *Mica* group, usually **Muscovite**, but may be **Paragonite** or Illite

Serpentine, a group of minerals of general formula $A_3Si_2O_5(OH)_4$, A = Mg,Fe^{2+},Ni, mon. and orth., part of the *Kaolinite–Serpentine* group

☐ **Serpierite**, $Ca(Cu^{2+},Zn)_4(SO_4)_2(OH)_6 \cdot 3H_2O$, mon., dimorph. with **Orthoserpierite**, sky-blue, **54**, 328 (1969)

☐ **Shabaite-(Nd)**, $Ca(Nd,Sm,Y)_2(UO_2)(CO_3)_4(OH)_2 \cdot 6H_2O$, mon., pale yellow, **75**, 433–434 (1990)

☐ **Shabynite**, $Mg_5(BO_3)(Cl,OH)_2(OH)_5 \cdot 4H_2O$, mon., **66**, 1101 (1981)

☐ **Shadlunite**, $(Pb,Cd)(Fe,Cu)_8S_8$, cub., *Pentlandite* group, **58**, 1114 (1973)

☐ **Shafranovskite**, $(Na,K)_6(Mn^{2+},Fe^{2+})_3Si_9O_{24}\cdot 6H_2O$, trig., olive-green to yellow-green, **68**, 644 (1983)

☐ **Shakhovite** (Shahovite), $Hg_4^{1+}Sb^{5+}O_3(OH)_3$, mon., green, **66**, 1101 (1981), **73**, 1499 (1988)

☐ **Shandite**, $Pb_2Ni_3S_2$, trig., ps. cub., compare **Parkerite**, **Rhodplumsite**, **35**, 425–434 (1950)

☐ **Sharpite**, $Ca(UO_2)_6(CO_3)_5(OH)_4\cdot 6H_2O$, orth., yellow-green, **24**, 658 (1939), **70**, 220 (1985)

☐ **Shattuckite**, $Cu_5^{2+}(SiO_3)_4(OH)_2$, orth., blue, **51**, 266–267 (1966)

☐ **Shcherbakovite**, $(K,Na,Ba)_3(Ti,Nb)_2Si_4O_{14}$, orth., dark brown, **40**, 788 (1955)

☐ **Shcherbinaite**, V_2O_5, orth., yellow-green, **58**, 560 (1973)

Sheridanite, a var. of **Clinochlore**, *Chlorite* group

☐ **Sherwoodite**, $Ca_9Al_2V_4^{4+}V_{24}^{5+}O_{80}\cdot 56H_2O$, tet., blue-black, **43**, 749–755 (1958), **63**, 863–868 (1978)

☐ **Shigaite**, $Mn_7^{2+}Al_4(SO_4)_2(OH)_{22}\cdot 8H_2O$, trig., yellow, **71**, 1546 (1986)

☐ **Shomiokite-(Y)**, $Na_3Y(CO_3)_3\cdot 3H_2O$, orth., **79**, 765–766 (1994)

☐ **Shortite**, $Na_2Ca_2(CO_3)_3$, orth., **24**, 514–518 (1939)

☐ **Shubnikovite**, $Ca_2Cu_8^{2+}(AsO_4)_6Cl(OH)\cdot 7H_2O$ (?), orth. (?), light blue, **40**, 552 (1955)

☐ **Shuiskite**, $Ca_2(Mg,Al)(Cr,Al)_2(SiO_4)(Si_2O_7)(OH)_2\cdot H_2O$, mon., dark brown, *Pumpellyite* group, **67**, 860 (1982)

☐ **Sibirskite**, $CaHBO_3$, mon., **48**, 433 (1963)

☐ **Sicklerite**, $Li(Mn^{2+},Fe^{3+})PO_4$, orth., forms a series with **Ferrisicklerite**, **26**, 681 (1941)

☐ **Siderazot**, Fe_5N_2, hex.

☐ **Siderite**, $Fe^{2+}CO_3$, trig., forms two series, with **Magnesite**, and with **Rhodochrosite**, *Calcite* group

☐ **Sideronatrite**, $Na_2Fe^{3+}(SO_4)_2(OH)\cdot 3H_2O$, orth., yellow

☐ **Siderophyllite**, $KFe^{2+}_2Al(Al_2Si_2)O_{10}(F,OH)_2$, mon., *Mica* group

☐ **Siderotil**, $Fe^{2+}SO_4\cdot 5H_2O$, tric., *Chalcanthite* group, **49**, 820 (1964)

☐ **Sidorenkite**, $Na_3Mn^{2+}(PO_4)(CO_3)$, mon., ps. orth., rose-colored, compare **Bonshtedtite**, **Bradleyite**, **64**, 1332 (1979)

☐ **Sidwillite**, $MoO_3\cdot 2H_2O$, mon., yellow, **71**, 1546 (1986)

☐ **Siegenite**, $(Ni,Co)_3S_4$, cub., *Linnaeite* group

☐ **Sieleckiite**, $Cu^{2+}_3Al_4(PO_4)_2(OH)_{12}\cdot 2H_2O$, tric., blue, **74**, 1401 (1989)

☐ **Sigloite**, $Fe^{3+}Al_2(PO_4)_2(OH)_3\cdot 7H_2O$, tric., *Paravauxite* group, **47**, 1–8 (1962), **74**, 1404 (1989)

☐ **Silhydrite**, $3SiO_2\cdot H_2O$, orth., **57**, 1053–1065 (1972)

☐ **Silicon**, Si, cub., **76**, 668 (1991)

☐ **Silinaite**, $NaLiSi_2O_5\cdot 2H_2O$, mon., *Can. Min.* **29**, 359–367 (1991), **76**, 2023–2024 (1991)

☐ **Sillenite**, $Bi_{12}SiO_{20}$, cub., yellow-green, **28**, 521–535 (1943)

☐ **Sillimanite**, Al_2SiO_5, orth., trimorph. with **Andalusite** and **Kyanite**

☐ **Silver**, Ag, cub. and hex., forms a series with **Gold**, polytypes are ***-3C***, ***-2H***, and ***-4H***, **65**, 1069 (1980)

☐ **Simferite**, $Li(Mg,Fe^{3+},Mn^{3+})_2(PO_4)_2$, orth., red, **78**, 452 (1993)

☐ **Simonellite**, $C_{19}H_{24}$, (1,1-dimethyl-7-isopropyl-1,2,3,4-tetrahydrophenanthrene), orth., **7**, 178 (1922), **55**, 1818 (1970)

☐ **Simonite**, $TlHgAs_3S_6$, mon., red, **69**, 211 (1984)

☐ **Simonkolleite**, $Zn_5(OH)_8Cl_2\cdot H_2O$, hex., **73**, 194–195 (1988)

☐ **Simplotite**, $CaV_4^{4+}O_9 \cdot 5H_2O$, mon., dark green, **43**, 16–24 (1958)

☐ **Simpsonite**, $Al_4(Ta,Nb)_3(O,OH,F)_{14}$, trig., **25**, 313 (1940)

☐ **Sincosite**, $CaV_2^{4+}(PO_4)_2(OH)_4 \cdot 3H_2O$, tet., green, **7**, 163–164 (1922), **70**, 409–410 (1985)

☐ **Sinhalite**, $MgAlBO_4$, orth., **37**, 700, 1072 (1952)

☐ **Sinjarite**, $CaCl_2 \cdot 2H_2O$, tet., pale pink, **65**, 1069 (1980)

☐ **Sinkankasite**, $H_2Mn^{2+}Al(PO_4)_2(OH) \cdot 6H_2O$, tric., **69**, 380–382 (1984)

☐ **Sinnerite**, $Cu_6As_4S_9$, tric., **57**, 824–834 (1972), **60**, 998–1012 (1975)

☐ **Sinoite**, Si_2N_2O, orth., **50**, 521 (1965)

☐ **Sitinakite**, $KNa_2Ti_4Si_2O_{13}(OH) \cdot 4H_2O$, tet., light brown to pale rose, **78**, 1317 (1993)

☐ **Sjögrenite**, $Mg_6Fe_2^{3+}(CO_3)(OH)_{16} \cdot 4H_2O$, hex., dimorph. with **Pyroaurite**, *Manasseite* group, **26**, 295–315 (1941)

☐ **Skinnerite**, Cu_3SbS_3, mon., **59**, 889–895 (1974)

☐ **Skippenite**, Bi_2Se_2Te, trig., *Tetradymite* group, **74**, 947 (1989)

☐ **Sklodowskite**, $(H_3O)_2Mg(UO_2)_2(SiO_4)_2 \cdot 2H_2O$, mon., pale yellow, compare **Cuprosklodowskite**, **10**, 132 (1925), **66**, 610–625 (1981)

☐ **Skutterudite**, $CoAs_{2-3}$, cub., forms a series with **Nickel-skutterudite**, compare **Kieftite**

☐ **Slavikite**, $NaMg_2Fe_5^{3+}(SO_4)_7(OH)_6 \cdot 33H_2O$, trig., greenish-yellow, **13**, 492 (1928)

☐ **Slawsonite**, $(Sr,Ca)Al_2Si_2O_8$, mon., *Feldspar* group, **62**, 31–35 (1977), **72**, 225–226 (1987)

Smaltite, an arsenic-deficient var. of **Skutterudite**, $CoAs_2$

Smaragd = Emerald

Smectite = any mineral of the *Smectite* group

☐ **Smirnite**, $Bi_2Te^{4+}O_5$, orth., **70**, 876–877 (1985)

☐ **Smithite**, $AgAsS_2$, mon., red, dimorph. with **Trechmannite**

☐ **Smithsonite**, $ZnCO_3$, trig., *Calcite* group

☐ **Smolianinovite**, $(Co,Ni,Mg,Ca)_3(Fe^{3+},Al)_2(AsO_4)_4 \cdot 11H_2O$ (?), orth., compare **Fahleite**, **42**, 307 (1957), **59**, 1141 (1974)

☐ **Smythite**, $Fe_{13}S_{16}$, trig., **42**, 309–333 (1957), **55**, 1650–1658 (1970), *Eur. J. Min.* **6**, 265–278 (1994)

☐ **Sobolevite**, $Na_{11}(Na,Ca)_4(Mg,Mn^{2+})Ti_4(Si_2O_7)_2(PO_4)_4O_4F_4$, tric., brown, compare **Lomonosovite**, **Polyphite**, and **Quadruphite**, **69**, 813 (1984)

☐ **Sobolevskite**, PdBi, hex., dimorph. with **Polarite** (?), *Nickeline* group, **61**, 1054 (1976)

Sobotkite = aluminian **Saponite** (?), **61**, 177 (1976)

Soda alum = **Sodium Alum**

Soda feldspar = **Albite**

☐ **Sodalite**, $Na_8Al_6Si_6O_{24}Cl_2$, cub., *Sodalite* group

Soda niter, $NaNO_3$ = **Nitratine**

☐ **Soddyite**, $(UO_2)_2SiO_4 \cdot 2H_2O$, orth., yellow, **7**, 179 (1922), **66**, 610–625 (1981)

☐ **Sodium Alum**, $NaAl(SO_4)_2 \cdot 12H_2O$, cub.

☐ **Sodium anthophyllite**, $Na(Mg,Fe^{2+})_7(Si_7Al)O_{22}(OH)_2$, orth., *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Sodium autunite**, $Na_2(UO_2)_2(PO_4)_2 \cdot 8H_2O$, tet., yellow, *Autunite* group, **43**, 383 (1958)

☐ **Sodium betpakdalite**, $(Na,Ca)_3Fe_2^{3+}(As_2O_4)(MoO_4)_6 \cdot 15H_2O$, mon., lemon-yellow, **57**, 1312 (1972)

☐ **Sodium boltwoodite**, $(H_3O)(Na,K)(UO_2)SiO_4 \cdot H_2O$, orth., pale yellow, **61**, 1054–1055 (1976)

☐ **Sodium dachiardite**, $(Na_2,Ca,K_2)_{4-5}Al_8Si_{40}O_{96} \cdot 26H_2O$, mon., *Zeolite* group, **64**, 244 (1979)

Sodium feldspar = **Albite**

☐ **Sodium gedrite**, $Na(Mg,Fe^{2+})_6Al(Si_6Al_2)O_{22}(OH)_2$, orth., $Mg/(Mg + Fe^{2+}) = 0.1–0.89$, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Sodium pharmacosiderite**, $(Na,K)_2Fe^{3+}_4(AsO_4)_3(OH)_5 \cdot 7H_2O$, cub., pale green, compare **Alumopharmacosiderite**, **Pharmacosiderite**, *Mineral. Rec.* **16**, 121–124 (1985), **71**, 230 (1986)

Sodium phlogopite, $NaMg_3(Si_3Al)O_{10}(OH)_2$, mon., *Mica* group, **66**, 219 (1981)

☐ **Sodium uranospinite**, $(Na_2,Ca)(UO_2)_2(AsO_4)_2 \cdot 5H_2O$, tet., green to yellow, *Meta-autunite* group, **43**, 383 (1958)

☐ **Sodium-zippeite**, $Na_4(UO_2)_6(SO_4)_3(OH)_{10} \cdot 4H_2O$, orth., yellow, compare **Zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Sofiite**, $Zn_2(Se^{4+}O_3)Cl_2$, orth., **75**, 1211–1212 (1990)

☐ **Sogdianite**, $(K,Na)_2(Li,Fe^{2+})_3(Zr,Ti,Fe^{3+})Si_{12}O_{30}$, hex., violet, *Osumilite* group, **54**, 1221 (1969)

☐ **Söhngeite**, $Ga(OH)_3$, cub., compare **Dzhalindite**, **51**, 1815 (1966)

☐ **Solongoite**, $Ca_2B_3O_4(OH)_4Cl$, mon., **60**, 162 (1975)

☐ **Sonolite**, $Mn^{2+}_9(SiO_4)_4(OH,F)_2$, mon., reddish-orange, dimorph. with **Jerrygibbsite**, *Humite* group, **48**, 1413 (1963)

☐ **Sonoraite**, $Fe^{3+}Te^{4+}O_3(OH) \cdot H_2O$, mon., yellow-green, **53**, 1828–1832 (1968)

☐ **Sopcheite**, $Ag_4Pd_3Te_4$, orth., **68**, 472 (1983)

Sophiite, see **Sofiite**

☐ **Sorbyite**, $Pb_{19}(Sb,As)_{20}S_{49}$, mon., **53**, 1425 (1968), *Mineral. Rec.* **13**, 97 (1982)

☐ **Sorensenite**, $Na_4Sn^{4+}Be_2Si_6O_{16}(OH)_4$, mon., **52**, 928 (1967)

☐ **Sosedkoite**, $(K,Na)_5Al_2(Ta,Nb)_{22}O_{60}$, orth., **68**, 644 (1983)

☐ **Soucekite**, $PbCuBi(S,Se)_3$, orth., compare **Bournonite**, **Seligmannite**, **65**, 209 (1980)

☐ **Souzalite**, $(Mg,Fe^{2+})_3(Al,Fe^{3+})_4(PO_4)_4(OH)_6 \cdot 2H_2O$, mon., dark green, forms a series with **Gormanite**, **34**, 83–93 (1949)

☐ **Spadaite**, $MgSiO_2(OH)_2 \cdot H_2O$ (?), **16**, 231–236 (1931)

☐ **Spangolite**, $Cu_6^{2+}Al(SO_4)(OH)_{12}Cl \cdot 3H_2O$, trig., dark green, **78**, 649–652 (1993)

Specularite, a var. of **Hematite**

☐ **Spencerite**, $Zn_4(PO_4)_2(OH)_2 \cdot 3H_2O$, mon.

Spencite = **Tritomite-(Y)**, **51**, 152–158 (1966)

☐ **Sperrylite**, $PtAs_2$, cub., *Pyrite* group

☐ **Spertiniite**, $Cu^{2+}(OH)_2$, orth., blue to blue-green, **67**, 810 (1982), **78**, 237–238 (1993)

☐ **Spessartine** (Spessartite), $Mn_3^{2+}Al_2(SiO_4)_3$, cub., forms a series with **Almandine**, *Garnet* group

☐ **Sphaerocobaltite**, $CoCO_3$, trig., red, *Calcite* group

☐ **Sphalerite**, (Zn,Fe)S, cub., trimorph. with **Matraite** and **Wurtzite**, *Sphalerite* group

Sphene = **Titanite**

☐ **Spheniscidite**, $(NH_4,K)(Fe^{2+},Al)_2(PO_4)_2(OH) \cdot 2H_2O$, mon., compare **Leucophosphite**, **Tinsleyite**, **72**, 1027 (1987)

Spherocobaltite = **Sphaerocobaltite**

☐ **Spinel**, $MgAl_2O_4$, cub., forms three series, with **Magnesiochromite**, with **Gahnite**, and with **Hercynite**, *Spinel* group

☐ **Spionkopite**, $Cu_{39}S_{28}$, hex., **66**, 1279 (1981)

☐ **Spiroffite**, $(Mn^{2+},Zn)_2Te_3^{4+}O_8$, mon., red to purple, **49**, 444 (1964)

☐ **Spodiosite**, $Ca_2(PO_4)F$, orth., (a doubtful mineral)

☐ **Spodumene**, $LiAlSi_2O_6$, mon., *Pyroxene* group

☐ **Spurrite**, $Ca_5(SiO_4)_2(CO_3)$, mon., dimorph. with **Paraspurrite**

☐ **Squawcreekite**, $Fe^{3+}Sb^{5+}O_4$, tet., yellow-brown, *Rutile* group, compare **Tripuhyite**, **77**, 449 (1992)

☐ **Srebrodolskite**, $Ca_2Fe_2^{3+}O_5$, orth., black, compare **Brownmillerite**, **71**, 1279–1280 (1986)

☐ **Srilankite**, $(Ti,Zr)O_2$, orth., blackish-brown, **69**, 212 (1984)

☐ **Stalderite**, $(Tl,Cu)(Zn,Fe,Hg)AsS_3$, tet., black, compare **Routhierite**, **78**, 845–846 (1993)

☐ **Stanfieldite**, $Ca_4(Mg,Fe^{2+},Mn^{2+})_5(PO_4)_6$, mon., **53**, 508 (1968)

☐ **Stanleyite**, $V^{4+}O(SO_4)\cdot 6H_2O$, orth., deep blue, **68**, 644–645 (1983)

☐ **Stannite**, Cu_2FeSnS_4, tet., dimorph. with **Ferrokesterite**, *Stannite* group

☐ **Stannoidite**, $Cu_8(Fe,Zn)_3Sn_2S_{12}$, orth., **54**, 1495 (1969), *Min. Abs.* **29**, 245 (1978)

☐ **Stannomicrolite** (Sukulaite), $(Sn^{2+},Fe^{2+},Mn^{2+})_2(Ta,Nb,Sn^{4+})_2(O,OH)_7$, cub., *Pyrochlore* group, **53**, 2103 (1968), **62**, 407 (1977)

☐ **Stannopalladinite**, $(Pd,Cu)_3Sn_2$ (?), hex., **56**, 360 (1971)

Staringite, a mixture of **Ferrotapiolite** and **Cassiterite**, *Min. Mag.* **58**, 271–277 (1994)

☐ **Starkeyite**, $MgSO_4\cdot 4H_2O$, mon., *Rozenite* group, **41**, 662 (1956)

☐ **Staurolite**, $(Fe^{2+},Mg,Zn)_2Al_9(Si,Al)_4O_{22}(OH)_2$, mon., ps. orth., **53**, 1139–1155 (1968), **67**, 292–297 (1982)

☐ **Steacyite**, $Th(Ca,Na)_2K_{1-x}Si_8O_{20}$, (x = 0.2–0.4), tet., compare **Ekanite**, **Iraqite**, **68**, 472 (1983)

☐ **Steenstrupine-(Ce)**, $Na_{14}Ce_6Mn^{2+}Mn^{3+}Fe_2^{2+}(Zr,Th)(Si_6O_{18})_2(PO_4)_7 \cdot 3H_2O$, trig.

☐ **Steigerite**, $AlV^{5+}O_4 \cdot 3H_2O$, mon., yellow, **20**, 769–772 (1935)

☐ **Stellerite**, $CaAl_2Si_7O_{18} \cdot 7H_2O$, orth., compare **Barrerite**, *Zeolite* group, **53**, 511 (1968)

☐ **Stenhuggarite**, $CaFe^{3+}(As^{3+}O_2)(As^{3+}Sb^{3+}O_5)$, tet., yellow, **56**, 636 (1971)

☐ **Stenonite**, $(Sr,Ba,Na)_2Al(CO_3)F_5$, mon., **48**, 1178 (1963)

☐ **Stepanovite**, $NaMgFe^{3+}(C_2O_4)_3 \cdot 8–9H_2O$, (an oxalate), trig., greenish, **49**, 442 (1964)

☐ **Stephanite**, Ag_5SbS_4, orth., compare **Selenostephanite**

☐ **Stercorite**, $H(NH_4)Na(PO_4) \cdot 4H_2O$, tric.

☐ **Sterlinghillite**, $Mn_3^{2+}(AsO_4)_2 \cdot 4H_2O$, white to light pink, **66**, 182–184 (1981)

☐ **Sternbergite**, $AgFe_2S_3$, orth., dimorph. with **Argentopyrite**

☐ **Sterryite**, $Ag_2Pb_{10}(Sb,As)_{12}S_{29}$, orth., **53**, 1423 (1968), *Mineral. Rec.* **13**, 97 (1982)

☐ **Stetefeldtite**, $Ag_2Sb_2(O,OH)_7$ (?), cub., *Stibiconite* group, **39**, 408 (1954)

☐ **Stevensite**, $(Ca/2)_{0.3}Mg_3Si_4O_{10}(OH)_2$, mon., *Smectite* group, **38**, 973–987 (1953), **44**, 343–370 (1959)

☐ **Stewartite**, $Mn^{2+}Fe_2^{3+}(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., yellow, dimorph. with **Laueite**, **59**, 1272–1276 (1974)

☐ **Stibarsen**, SbAs, trig., *Arsenic* group, **21**, 202 (1936), **76**, 257–265 (1991)

☐ **Stibiconite**, $Sb^{3+}Sb_2^{5+}O_6(OH)$, cub., *Stibiconite* group

☐ **Stibiobetafite**, $(Sb^{3+},Ca)_2(Ti,Nb,Ta)_2(O,OH)_7$, cub., *Pyrochlore* group, **66**, 1278 (1981)

☐ **Stibiocolumbite**, $SbNbO_4$, orth., forms a series with **Stibiotantalite**, compare **Bismutotantalite**

☐ **Stibiocolusite**, $Cu_{26}V_2(Sb,Sn,As)_6S_{32}$, cub., dark grey, *Colusite* group, **79**, 186–187 (1994)

☐ **Stibiomicrolite**, $(Sb,Ca,Na)_2(Ta,Nb)_2O_7$, cub., *Pyrochlore* group, **73**, 1499 (1988)

☐ **Stibiopalladinite**, Pd_5Sb_2, hex., **58**, 1–10 (1973)

☐ **Stibiotantalite**, $SbTaO_4$, orth., forms a series with **Stibiocolumbite**, compare **Bismutotantalite**

☐ **Stibivanite**, $Sb^{3+}_2V^{4+}O_5$, mon. and orth., yellow-green, polytypes **-2*M*** and **-2*O***, *Can. Min.* **27**, 625–632 (1988), **66**, 1278 (1981), **75**, 937 (1990)

☐ **Stibnite**, Sb_2S_3, orth., dimorph. with **Metastibnite**, compare **Bismuthinite**, **Guanajuatite**, **Antimonselite**

☐ **Stichtite**, $Mg_6Cr_2(CO_3)(OH)_{16}\cdot 4H_2O$, trig., lilac, dimorph. with **Barbertonite**, *Hydrotalcite* group

☐ **Stilbite**, $NaCa_2Al_5Si_{13}O_{36}\cdot 14H_2O$, mon. and tric., *Zeolite* group, **70**, 814–821 (1985)

☐ **Stilleite**, ZnSe, cub., *Sphalerite* group, **42**, 584 (1957)

☐ **Stillwaterite**, Pd_8As_3, hex., **62**, 1060 (1977)

☐ **Stillwellite-(Ce)**, $(Ce,La,Ca)BSiO_5$, trig., **41**, 370 (1956), **77**, 1308 (1992)

☐ **Stilpnomelane**, $K(Fe^{2+},Mg,Fe^{3+})_8(Si,Al)_{12}(O,OH)_{27}$, mon. and tric., compare **Lennilenapeite**, **Franklinphilite**

☐ **Stishovite**, SiO_2, with Si in 6-fold coordination, tet., polymorph. with **Quartz**, **Tridymite**, **Cristobalite**, and **Coesite**, *Rutile* group, **47**, 807 (1962)

☐ **Stistaite**, SnSb, cub., **56**, 358 (1971)

☐ **Stoiberite**, $Cu^{2+}_5V^{5+}_2O_{10}$, mon., black, **64**, 941–944 (1979)

☐ **Stokesite**, $CaSnSi_3O_9 \cdot 2H_2O$, orth.

☐ **Stolzite**, $PbWO_4$, tet., dimorph. with **Raspite**, compare **Wulfenite**

☐ **Stottite**, $Fe^{2+}Ge^{4+}(OH)_6$, tet., *Stottite* group, **43**, 1006 (1958), **73**, 657–661 (1988)

☐ **Straczekite**, $(Ca,K,Ba)_2(V^{5+},V^{4+})_8O_{20} \cdot 6H_2O$, mon., greenish-black, **70**, 877 (1985), **75**, 508–521 (1990)

Straetlingite = **Strätlingite**

☐ **Stranskiite**, $Zn_2Cu^{2+}(AsO_4)$, tric., blue, compare **Mcbirneyite**, **45**, 1315 (1960), **63**, 213–215 (1978)

☐ **Strashimirite**, $Cu_8^{2+}(AsO_4)_4(OH)_4 \cdot 5H_2O$, mon., green, **54**, 1221 (1969)

☐ **Strätlingite**, $Ca_8Al_4(Al_4Si_4)O_8(OH)_{40} \cdot 10H_2O$, trig., green, **62**, 395 (1977), *Eur. J. Min.* **2**, 841–849 (1990), **77**, 674–675 (1992)

☐ **Strelkinite**, $Na_2(UO_2)_2V_2O_8 \cdot 6H_2O$, orth., gold- to canary-yellow, **60**, 488 (1975)

☐ **Strengite**, $Fe^{3+}PO_4 \cdot 2H_2O$, orth., rose to violet, dimorph. with **Phosphosiderite**, forms a series with **Variscite**, *Variscite* group

☐ **Stringhamite**, $CaCu^{2+}SiO_4 \cdot H_2O$, mon., azure-blue, **61**, 189–192 (1976), **71**, 231 (1986)

☐ **Stromeyerite**, AgCuS, orth.

☐ **Stronalsite**, $SrNa_2Al_4Si_4O_{16}$, orth., compare **Banalsite**, *Feldspar* group, **72**, 226 (1987), **73**, 195 (1988)

☐ **Strontianite**, $SrCO_3$, orth., *Aragonite* group

☐ **Strontioborite**, $SrB_8O_{11}(OH)_4$, mon., **46**, 768 (1961), **50**, 1508 (1965)

☐ **Strontiochevkinite**, $(Sr,La,Ce,Ca)_4(Fe^{2+},Fe^{3+})(Ti,Zr)_4Si_4O_{22}$, mon., compare **Chevkinite**, **69**, 1192–1193 (1984)

☐ **Strontiodresserite**, $(Sr,Ca)Al_2(CO_3)_2(OH)_4 \cdot H_2O$, orth., compare **Dresserite**, *Can. Min.* **15**, 405–407 (1977)

☐ **Strontioginorite**, $(Sr,Ca)_2B_{14}O_{23}\cdot 8H_2O$, mon., compare **Ginorite**, **55**, 1911–1931 (1970)

Strontiohilgardite = strontian **Tyretskite-1Tc**

☐ **Strontiojoaquinite**, $Sr_2Ba_2(Na,Fe^{2+})_2Ti_2Si_8O_{24}(O,OH)_2\cdot H_2O$, mon., green to yellow-green, dimorph. with **Strontio-orthojoaquinite**, *Joaquinite* group, **67**, 809–816 (1982)

☐ **Strontio-orthojoaquinite**, $Sr_2Ba_2(Na,Fe^{2+})_2Ti_2Si_8O_{24}(O,OH)_2\cdot H_2O$, orth., dimorph. with **Strontiojoaquinite**, *Joaquinite* group, **67**, 809–816 (1982)

☐ **Strontiopiemontite**, $CaSr(Al,Mn^{3+},Fe^{3+})_3Si_3O_{11}O(OH)$, mon., deep red, *Epidote* group, *Eur. J. Min.* **2**, 519–523 (1990), **76**, 668 (1991)

☐ **Strontiopyrochlore**, $Sr_2Nb_2(O,OH)_7$, cub., *Pyrochlore* group, **73**, 930 (1988)

☐ **Strontiowhitlockite**, $Sr_9Mg(PO_4)_6(PO_3OH)$, trig., compare **Whitlockite**, isostructural with the silicate **Cerite-(Ce)**, *Can. Min.* **29**, 82–93 (1991), **76**, 2024 (1991)

☐ **Strontium-apatite**, $(Sr,Ca)_5(PO_4)_3(OH,F)$, hex., green, *Apatite* group, **47**, 808 (1962)

☐ **Strunzite**, $Mn^{2+}Fe_2^{3+}(PO_4)_2(OH)_2\cdot 6H_2O$, tric., ps. mon., yellow, compare **Ferrostrunzite**, **Ferristrunzite**, **43**, 793 (1958)

☐ **Strüverite**, $(Ti,Ta,Fe^{3+})_2O_6$, tet., forms a series with **Ilmenorutile**, **49**, 792–794 (1964)

☐ **Struvite**, $(NH_4)MgPO_4\cdot 6H_2O$, orth.

☐ **Studtite**, $UO_4\cdot 4H_2O$, mon., yellow, **59**, 166–171 (1974)

Stuetzite = **Stützite**

☐ **Stumpflite**, Pt(Sb,Bi), hex., *Nickeline* group, **59**, 211 (1974)

☐ **Sturmanite**, $Ca_6(Fe^{3+},Al,Mn^{2+})_2(SO_4)_2[B(OH)_4](OH)_{12}\cdot 25\ H_2O$, hex., yellow, *Ettringite* group, **73**, 195 (1988)

Sturtite, a doubtful hydrous manganese silicate, amor., **65**, 210 (1980)

☐ **Stützite**, $Ag_{5-x}Te_3$, hex., **49**, 325–338 (1964), **53**, 1515–1522 (1968)

☐ **Suanite**, $Mg_2B_2O_5$, mon., **40**, 941 (1955)

☐ **Sudburyite**, (Pd,Ni)Sb, hex., *Nickeline* group, **61**, 178 (1976)

☐ **Sudoite**, $Mg_2(Al,Fe^{3+})_3Si_3AlO_{10}(OH)_8$, mon., *Chlorite* group, **48**, 213 (1963)

☐ **Suessite**, $(Fe,Ni)_3Si$, cub., **66**, 1101 (1981), **67**, 126–131 (1982)

☐ **Sugilite**, $KNa_2(Fe^{2+},Mn^{2+},Al)_2Li_3Si_{12}O_{30}$, hex., *Osumilite* group, **62**, 596 (1977), **73**, 595–600 (1988)

☐ **Sulfoborite**, $Mg_3B_2(SO_4)(OH)_8(OH,F)_2$, orth., **68**, 255–261 (1983)

☐ **Sulfur**, S. orth., yellow, dimorph. with **Rosickyite**

☐ **Sulphohalite**, $Na_6(SO_4)_2FCl$, cub.

☐ **Sulphotsumoite**, Bi_3Te_2S, hex., compare **Tsumoite**, **68**, 1250 (1983), **76**, 257–265 (1991)

Sulphur = **Sulfur**

Sulrhodite = **Bowieite**, **74**, 1216 (1989)

☐ **Sulvanite**, Cu_3VS_4, cub., forms a series with **Arsenosulvanite**

☐ **Sundiusite**, $Pb_{10}(SO_4)Cl_2O_8$, mon., **65**, 506–508 (1980)

☐ **Suolunite**, $Ca_2Si_2O_5(OH)_2 \cdot H_2O$, orth., **52**, 560 (1967), **53**, 349 (1968)

☐ **Surinamite**, $(Mg,Fe^{2+})_3Al_4BeSi_3O_{16}$, mon., blue, **61**, 193–199 (1976), **67**, 418 (1982), **68**, 804–810 (1983)

☐ **Surite**, $Pb(Pb,Ca)(Al,Fe^{3+},Mg)_2(Si,Al)_4O_{10}(OH)_2(CO_3)_2$, mon., compare **Ferrisurite**, **63**, 1175–1181 (1978)

☐ **Sursassite**, $Mn_2^{2+}Al_3(SiO_4)(Si_2O_7)(OH)_3$, mon., red-brown to copper-red, compare **MacFallite**, **12**, 380 (1927), **49**, 168–173 (1964), **70**, 221 (1985)

☐ **Susannite**, $Pb_4(SO_4)(CO_3)_2(OH)_2$, trig., trimorph. with **Leadhillite** and **Macphersonite**, **55**, 1449 (1970)

☐ **Sussexite**, $Mn^{2+}BO_2(OH)$, orth. or mon., ps. orth., forms a series with **Szaibelyite**

☐ **Suzukiite**, $BaV^{4+}Si_2O_7$, orth., bright green, compare **Haradaite**, **68**, 282 (1983)

☐ **Svabite**, $Ca_5(AsO_4)_3F$, hex., *Apatite* group

☐ **Svanbergite**, $SrAl_3(PO_4)(SO_4)(OH)_6$, trig., *Beudantite* group

☐ **Sveite**, $KAl_7(NO_3)_4Cl_2(OH)_{16}\cdot 8H_2O$, mon., **67**, 1076 (1982)

☐ **Sverigeite**, $NaMn^{2+}MgSn^{4+}Be_2Si_3O_{12}(OH)$, orth., yellow, **70**, 1332 (1985), **74**, 1343–1350 (1989)

Svetlozarite = twinned **Dachiardite**, **62**, 1060 (1977)

☐ **Svyatoslavite**, $CaAl_2Si_2O_8$, orth., trimorph. with **Anorthite** and **Dmisteinbergite**, *Feldspar* group, **76**, 300–301 (1991)

☐ **Svyazhinite**, $(Mg,Mn^{2+})(Al,Fe^{3+})(SO_4)_2F\cdot 14H_2O$, tric., compare **Aubertite**, **Magnesioaubertite**, **70**, 877 (1985)

☐ **Swaknoite**, $Ca(NH_4)_2(HPO_4)_2\cdot H_2O$, orth., dimorph. with **Mundrabillaite**, **78**, 1110 (1993)

☐ **Swamboite**, $U^{6+}H_6(UO_2)_6(SiO_4)_6\cdot 30H_2O$, mon., pale yellow, **68**, 1250 (1983)

☐ **Swartzite**, $CaMg(UO_2)(CO_3)_3\cdot 12H_2O$, mon., green, **36**, 1–22 (1951)

☐ **Swedenborgite**, $NaBe_4SbO_7$, hex., **20**, 492–501 (1935)

☐ **Sweetite**, $Zn(OH)_2$, tet., trimorph. with **Ashoverite** and **Wülfingite**, **70**, 438 (1985)

☐ **Swinefordite**, $(Ca,Na)_{0.3}(Li,Mg)_2(Si,Al)_4O_{10}(OH,F)_2\cdot 2H_2O$, mon., yellow, *Smectite* group, **60**, 540–547 (1975)

☐ **Switzerite**, $(Mn^{2+},Fe^{2+})_3(PO_4)_2\cdot 7H_2O$, mon., pink to brown, **52**, 1595–1602 (1967), **71**, 1221–1223 (1986)

☐ **Sylvanite**, $(Au,Ag)_2Te_4$, mon., compare **Kostovite**

Sylvinite, a mixt. of **Halite** and **Sylvite**

☐ **Sylvite**, KCl, cub.

☐ **Symplesite**, $Fe_3^{2+}(AsO_4)_2 \cdot 8H_2O$, tric., green, dimorph. with **Parasymplesite**, compare **Metaköttigite**, **Metavivianite**

☐ **Synadelphite**, $(Mn^{2+},Mg,Ca,Pb)_9(As^{3+}O_3)(As^{5+}O_4)_2(OH)_9 \cdot 2H_2O$ (?), tric., ps. orth., **55**, 2023–2037 (1970)

☐ **Synchysite-(Ce)**, $Ca(Ce,La)(CO_3)_2F$, orth., ps. hex., yellow to brown

☐ **Synchysite-(Nd)**, $Ca(Nd,La)(CO_3)_2F$, orth., ps. hex., **64**, 658 (1979)

☐ **Synchysite-(Y)** (Doverite), $Ca(Y,Ce)(CO_3)_2F$, hex. (or orth., ps. hex.) (?), **45**, 92–98 (1960)

☐ **Syngenite**, $K_2Ca(SO_4)_2 \cdot H_2O$, mon., compare **Koktaite**

☐ **Szaibelyite**, $MgBO_2(OH)$, mon., forms a series with **Sussexite**

☐ **Szenicsite**, $Cu_3^{2+}(MoO_4)(OH)_4$, orth., dark green, *Mineral. Rec.* **25**, 76 (1994)

☐ **Szmikite**, $Mn^{2+}(SO_4) \cdot H_2O$, mon., *Kieserite* group

☐ **Szomolnokite**, $Fe^{2+}SO_4 \cdot H_2O$, mon., *Kieserite* group

Sztrokayite, Bi_3TeS_2, **72**, 1027 (1987)

☐ **Szymanskiite**, $Hg_{16}^{1+}(Ni,Mg)_6(CO_3)_{12}(OH)_{12}(H_3O)_8^{1+} \cdot 3H_2O$, hex., blue-gray, *Can. Min.* **28**, 703–718 (1990), **76**, 1731 (1991)

☐ **Taaffeite**, $Mg_3Al_8BeO_{16}$, hex., purple, **37**, 360 (1952), **69**, 215 (1984)

☐ **Tacharanite**, $Ca_{12}Al_2Si_{18}O_{51}\cdot 18H_2O$, mon., **47**, 173 (1962), **61**, 1055 (1976)

☐ **Tachyhydrite**, $CaMg_2Cl_6\cdot 12H_2O$, trig.

☐ **Tadzhikite-(Ce)**, $Ca_3(Ce,Nd,La)_2(Ti,Al,Fe^{3+})B_4Si_4O_{22}$, mon., compare **Hellandite**, **56**, 1838 (1971)

☐ **Taeniolite**, $KLiMg_2Si_4O_{10}F_2$, mon., *Mica* group

☐ **Taenite**, (Ni,Fe), γ-Nickel-iron, face-centered cub., compare **Kamacite**, **Tetrataenite**

☐ **Taikanite**, $BaSr_2Mn_2^{3+}O_2(Si_2O_{12})$, mon., emerald-green, **72**, 226 (1987), **78**, 849 (1993), **78**, 1088–1095 (1993)

☐ **Taimyrite**, $(Pd,Cu,Pt)_3Sn$, orth., **68**, 1252 (1983)

Taiyite = **Aeschynite-(Y)**, **61**, 178 (1976)

☐ **Takanelite**, $(Mn^{2+},Co)Mn_4^{4+}O_9\cdot H_2O$, hex., forms a series with **Rancieite**, **56**, 1487 (1971)

☐ **Takeuchiite**, $(Mg,Mn^{2+})_2(Mn^{3+},Fe^{3+})BO_5$, orth., black, polymorph. with **Fredrikssonite**, **Orthopinakiolite**, and **Pinakiolite**, compare **Blatterite**, **65**, 1130–1133 (1980), **71**, 227 (1986)

☐ **Takovite**, $Ni_6Al_2(OH)_{16}(CO_3,OH)\cdot 4H_2O$, trig., bluish-green, *Hydrotalcite* group, **57**, 1559 (1972), **62**, 458 464 (1977)

☐ **Talc**, $Mg_3Si_4O_{10}(OH)_2$, mon. and tric., compare **Minnesotaite**, **Willemseite**

☐ **Talmessite**, $Ca_2Mg(AsO_4)_2\cdot 2H_2O$, tric., forms a series with **Gaitite**, *Fairfieldite* group, **42**, 583 (1957), **50**, 813 (1965)

☐ **Talnakhite**, $Cu_9(Fe,Ni)_8S_{16}$, cub., **55**, 2135 (1970), **56**, 2159 (1971)

☐ **Tamarugite**, $NaAl(SO_4)_2\cdot 6H_2O$, mon.

☐ **Tancoite**, $HNa_2LiAl(PO_4)_2(OH)$, orth., **66**, 1278 (1981)

☐ **Taneyamalite**, $Na(Mn^{2+},Mg,Fe^{2+})_{12}Si_{12}(O,OH)_{44}$, tric., greenish-gray-yellow, compare **Howieite**, **66**, 1101 (1981)

☐ **Tangeite**, $CaCuVO_4(OH)$, orth., *Adelite* group, *N. Jb. Min. Mon.* 205–208 (1994)

☐ **Tantalaeschynite-(Y)**, $(Y,Ce,Ca)(Ta,Ti,Nb)_2O_6$, orth., forms a series with **Aeschynite-(Y)**, **59**, 1331 (1974)

Tantalite, see **Ferrotantalite**, **Manganotantalite**, when not specified, usually refers to **Ferrotantalite**

☐ **Tanteuxenite-(Y)**, $(Y,Ce,Ca)(Ta,Nb,Ti)_2(O,OH)_6$, orth., compare **Euxenite-(Y)**, **Yttrocrasite-(Y)**, **45**, 756 (1960)

☐ **Tantite**, Ta_2O_5, tric. (?), **69**, 1193 (1984)

Tanzanite = a blue to violet gem var. of **Zoisite**

Tapiolite, the series **Ferrotapiolite-Manganotapiolite**

Taprobanite = **Taaffeite**, **67**, 1076 (1982), **69**, 215 (1984)

☐ **Taramellite**, $Ba_4(Fe^{3+},Ti,Fe^{2+},Mg)_4(B_2Si_8O_{27})O_2Cl_4$, $Fe^{3+} > Ti$, orth., forms a series with **Titantaramellite**, compare **Nagashimalite**, **44**, 469 (1959), **65**, 123–128 (1980), **69**, 358–373 (1984)

☐ **Taramite**, $Na_2Ca(Fe^{2+},Mg)_3Al_2(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0–0.49$, forms a series with **Magnesiotaramite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Taranakite**, $(K,NH_4)Al_3(PO_4)_3(OH)\cdot 9H_2O$, trig., **41**, 616–626 (1956)

☐ **Tarapacaite**, K_2CrO_4, orth., bright yellow

Tarasovite, an interstratified *Mica-Smectite*, mon., **56**, 1123 (1971), **67**, 394–398 (1982)

☐ **Tarbuttite**, $Zn_2(PO_4)(OH)$, tric.

☐ **Tatarskite**, $Ca_6Mg_2(SO_4)_2(CO_3)_2Cl_4(OH)_4\cdot 7H_2O$, orth., **49**, 1151 (1964)

☐ **Tausonite**, $SrTiO_3$, cub., *Perovskite* group, **70**, 218 (1985)

☐ **Tavorite**, $LiFe^{3+}(PO_4)(OH)$, tric., yellow-green, *Amblygonite* group, **40**, 952–966 (1955)

Taylorite = ammonian **Arcanite**

☐ **Tazheranite**, $(Zr,Ti,Ca)O_2$, cub., orange, **55**, 318 (1970)

☐ **Teallite**, $PbSnS_2$, orth.

☐ **Teepleite**, $Na_2B(OH)_4Cl$, tet., **24**, 48–52 (1939)

☐ **Teineite**, $Cu^{2+}Te^{4+}O_3 \cdot 2H_2O$, orth., deep blue, compare **Chalcomenite**, **46**, 466 (1961)

☐ **Telargpalite**, $(Pd,Ag)_3Te$ (?), cub., **60**, 489 (1975), **66**, 1103 (1981)

☐ **Tellurantimony**, Sb_2Te_3, trig., forms a series with **Tellurobismuthite**, *Tetradymite* group, **59**, 382–383 (1974)

Tellurbismuth = **Tellurobismuthite**

☐ **Tellurite**, TeO_2, orth., dimorph. with **Paratellurite**

☐ **Tellurium**, Te, trig.

☐ **Tellurobismuthite**, Bi_2Te_3, trig., forms a series with **Tellurantimony**, *Tetradymite* group, **25**, 208 (1940)

☐ **Tellurohauchecornite**, Ni_9BiTeS_8, tet., *Hauchecornite* group, **66**, 436 (1981)

☐ **Telluropalladinite**, Pd_9Te_4, mon., **66**, 1275 (1981)

☐ **Temagamite**, Pd_3HgTe_3, orth., **60**, 947 (1975)

☐ **Tengchongite**, $CaU^{6+}_6Mo^{6+}_2O_{25} \cdot 12H_2O$, orth., yellow, **73**, 195–196 (1988)

☐ **Tengerite-(Y)**, $Y_2(CO_3)_3 \cdot 2–3H_2O$, orth., **78**, 425–432 (1993)

☐ **Tennantite**, $(Cu,Ag,Fe,Zn)_{12}As_4S_{13}$, cub., forms a series with **Tetrahedrite**, *Tetrahedrite* group

☐ **Tenorite**, $Cu^{2+}O$, mon., black

☐ **Tephroite**, $Mn_2^{2+}SiO_4$, orth., forms a series with **Fayalite**, *Olivine* group

☐ **Terlinguaite**, Hg_2ClO, mon., yellow

☐ **Terskite**, $Na_4ZrSi_6O_{15}(OH)_2 \cdot H_2O$, orth., ps. tet., colorless to pale lilac, **69**, 212 (1984)

☐ **Tertschite**, $Ca_4B_{10}O_{19} \cdot 20H_2O$, mon. (?), **39**, 849 (1954)

☐ **Teruggite**, $Ca_4MgAs_2B_{12}O_{22}(OH)_{12} \cdot 12H_2O$, mon., **53**, 1815–1827 (1968)

☐ **Teschemacherite**, $(NH_4)HCO_3$, orth.

☐ **Testibiopalladite**, Pd(Sb,Bi)Te, cub., *Pyrite* group, compare **Maslovite**, **Michenerite**, **61**, 182 (1976), **77**, 675 (1992)

☐ **Tetra-auricupride**, AuCu, tet., **68**, 1250–1251 (1983)

☐ **Tetradymite**, Bi_2Te_2S, trig., *Tetradymite* group

☐ **Tetraferroplatinum**, nearly PtFe, tet., **61**, 341 (1976)

☐ **Tetrahedrite**, $(Cu,Fe,Ag,Zn)_{12}Sb_4S_{13}$, cub., forms two series, with **Tennantite**, and with **Freibergite**, *Tetrahedrite* group

Tetrakalsilite = **Panunzite**

☐ **Tetranatrolite**, $Na_2Al_2Si_3O_{10} \cdot 2H_2O$, tet., dimorph. with **Natrolite**, *Zeolite* group, **66**, 1278–1279 (1981)

☐ **Tetrarooseveltite**, β-$Bi^{3+}(AsO_4)$, tet., white to yellowish-white, dimorph. with **Rooseveltite**, compare **Scheelite**, *N. Jb. Min. Mon.* 179–184 (1994)

☐ **Tetrataenite**, FeNi, tet., compare **Kamacite**, **Taenite**, **65**, 624–630 (1980)

☐ **Tetrawickmanite**, $Mn^{2+}Sn^{4+}(OH)_6$, tet., yellow, dimorph. with **Wickmanite**, *Stottite* group, *Mineral. Rec.* **4**, 24–30 (1973), **58**, 966–967 (1973)

Texasite, discredited, **67**, 156–169 (1982)

☐ **Thadeuite**, $(Ca,Mn^{2+})(Mg,Fe^{2+},Mn^{3+})_3(PO_4)_2(OH,F)_2$, orth., yellow-orange, **64**, 359–361 (1979), **67**, 120–125 (1982)

☐ **Thalcusite**, $Tl_2(Cu,Fe)_4S_4$, tet., compare **Bukovite**, **Murunskite**, **62**, 396 (1977)

☐ **Thalenite-(Y)**, $Y_3Si_3O_{10}(F,OH)$ (?), mon.

☐ **Thalfenisite**, $Tl_6(Fe,Ni,Cu)_{25}S_{26}Cl$, cub., compare **Djerfisherite**, **66**, 219 (1981)

☐ **Thaumasite**, $Ca_6Si_2(CO_3)_2(SO_4)_2(OH)_{12}\cdot 24H_2O$, hex.

☐ **Theisite**, $Cu_5^{2+}Zn_5(As^{5+},Sb^{5+})_2O_8(OH)_{14}$, orth., pale blue-green, **68**, 282 (1983)

☐ **Thenardite**, Na_2SO_4, orth.

☐ **Theophrastite**, $Ni(OH)_2$, trig., emerald-green, *Brucite* group, **66**, 1020–1021 (1981)

☐ **Theresmagnanite**, $(Co,Zn,Ni)_6(SO_4)(OH,Cl)_{10}\cdot 8H_2O$, hex., pink to light pink, **78**, 1314–1315 (1993)

☐ **Thermonatrite**, $Na_2CO_3\cdot H_2O$, orth.

☐ **Thometzekite**, $Pb(Cu^{2+},Zn)_2(AsO_4)_2\cdot 2H_2O$, mon. or tric., bluish-green to green, related to **Helmutwinklerite** and **Tsumcorite**, **73**, 931 (1988)

☐ **Thomsenolite**, $NaCaAlF_6\cdot H_2O$, mon., dimorph. with **Pachnolite**

☐ **Thomsonite**, $NaCa_2Al_5Si_5O_{20}\cdot 6H_2O$, orth., *Zeolite* group

☐ **Thorbastnäsite**, $Th(Ca,Ce)(CO_3)_2F_2\cdot 3H_2O$, hex., **50**, 1505 (1965)

☐ **Thoreaulite**, $Sn^{2+}Ta_2O_6$, mon., forms a series with **Foordite**, **19**, 236 (1934), **59**, 1026–1039 (1974)

☐ **Thorianite**, ThO_2, cub., forms a series with **Uraninite**, compare **Cerianite**

☐ **Thorikosite**, $Pb_3(Sb^{3+},As^{3+})O_3(OH)Cl_2$, tet., light yellow, **70**, 845–848 (1985)

☐ **Thorite**, $(Th,U)SiO_4$, tet., dimorph. with **Huttonite**

☐ **Thornasite**, $(Na,K)ThSi_{11}(O,F,OH)_{25}\cdot 8H_2O$, trig., **73**, 931 (1988)

☐ **Thorogummite**, $Th(SiO_4)_{1-x}(OH)_{4x}$, tet., compare **Coffinite**, **38**, 1007–1018 (1953)

☐ **Thorosteenstrupine**, $(Ca,Th,Mn)_3Si_4O_{11}F\cdot 6H_2O$, amor., **48**, 433 (1963)

☐ **Thortveitite**, $(Sc,Y)_2Si_2O_7$, mon., compare **Keiviite-(Y)**, **Keiviite-(Yb)**, **7**, 195 (1922)

☐ **Thorutite**, $(Th,U,Ca)Ti_2(O,OH)_6$, mon., forms a series with **Brannerite**, **43**, 1007 (1958), **48**, 1419 (1963)

☐ **Threadgoldite**, $Al(UO_2)_2(PO_4)_2(OH)\cdot 8H_2O$, mon., greenish-yellow, **65**, 209 (1980)

Thucholite, a mixt. of **Uraninite** with carbonaceous matter

Thulite, a rose-colored var. of **Zoisite**

Thuringite = a ferrian var. of **Chamosite**, *Chlorite* group

Tibiscumite, $(Na,Ca,K)(Al,Fe,Mg)_4Si_8O_{20}(OH)_4\cdot H_2O$, mon., = **Allophane**

☐ **Tiemannite**, HgSe, cub., compare **Metacinnabar**, *Sphalerite* group, **35**, 358–360 (1950)

☐ **Tienshanite**, $BaNa_2Mn^{2+}TiB_2Si_6O_{20}$, hex., green, **53**, 1426 (1968)

☐ **Tiettaite**, $(Na,K)_{17}Fe^{3+}TiSi_{16}O_{29}(OH)_{30}\cdot 2H_2O$, orth.

☐ **Tikhonenkovite**, $SrAlF_4(OH)\cdot H_2O$, mon., dimorph. with **Aeuminite**, **49**, 1774 (1964)

☐ **Tilasite**, $CaMg(AsO_4)F$, mon., forms a series with **Maxwellite**

☐ **Tilleyite**, $Ca_5Si_2O_7(CO_3)_2$, mon., **18**, 469–477 (1933)

☐ **Tin**, Sn, tet.

☐ **Tinaksite**, $K_2Na(Ca,Mn^{2+})_2TiSi_7O_{19}(OH)$, tric., pale yellow, **50**, 2098 (1965)

Tincal = **Borax**

☐ **Tincalconite**, $Na_2B_4O_5(OH)_4 \cdot 3H_2O$, trig.

Tinnunculite, $C_{10}H_{12}N_6O_8$, *Chem. Abst.* **114**, 147109 (1991)

☐ **Tinsleyite**, $KAl_2(PO_4)_2(OH) \cdot 2H_2O$, mon., dark magenta-red, compare **Leucophosphite**, **Spheniscidite**, **69**, 374–376 (1984)

☐ **Tinticite**, $Fe^{3+}_4(PO_4)_3(OH)_3 \cdot 5H_2O$, mon., **31**, 395–400 (1946), **74**, 1404 (1989)

☐ **Tintinaite**, $Pb_{22}Cu^{1+}_4(Sb,Bi)_{30}S_{69}$, orth., forms a series with **Kobellite**, **54**, 573 (1969)

☐ **Tinzenite**, $(Ca,Mn^{2+},Fe^{2+})_3Al_2BSi_4O_{15}(OH)$, tric., yellow to red, forms a series with **Manganaxinite**, *Axinite* group, **13**, 202 (1928), **53**, 1407–1411 (1968)

☐ **Tiptopite**, $K_2(Na,Ca)_2Li_3Be_6(PO_4)_6(OH)_2 \cdot H_2O$, hex., **71**, 230 (1986), **72**, 816–820 (1987)

☐ **Tiragalloite**, $Mn^{2+}_3As^{5+}Si_3O_{12}(OH)$, mon., orange, **65**, 947–952 (1980)

☐ **Tirodite**, $Mn^{2+}_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5$–1.0, forms a series with **Dannemorite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Tisinalite**, $Na_3H_3(Mn^{2+},Ca,Fe)TiSi_6(O,OH)_{18} \cdot 2H_2O$, trig., yellow-orange, *Lovozerite* group, **66**, 219–220 (1981)

Titanaugite = titanian **Augite**, *Pyroxene* group

☐ **Titanite** (Sphene), $CaTiSiO_5$, mon., compare **Malayaite**

☐ **Titanowodginite**, $Mn^{2+}TiTa_2O_8$, mon., dark brown to black, compare **Ferrowodginite**, **Lithiowodginite**, and **Wodginite**, *Can. Min.* **30**, 633–638 (1992), **78**, 848 (1993)

☐ **Titantaramellite**, $Ba_4(Ti,Fe^{3+},Fe^{2+},Mg)_4(B_2Si_8O_{27})O_2Cl_x$, orth., $Ti > Fe^{3+}$, forms a series with **Taramellite**, compare **Nagashimalite**, **69**, 358–373 (1984)

☐ **Tivanite**, $V^{3+}TiO_3(OH)$, mon., black, **66**, 866–871 (1981)

☐ **Tlalocite**, $(Cu^{2+},Zn)_{16}(Te^{4+}O_3)(Te^{6+}O_4)_2Cl(OH)_{25}\cdot 27H_2O$, orth., blue, **61**, 504 (1976)

☐ **Tlapallite**, $H_6(Ca,Pb)_2(Cu^{2+},Zn)_3(SO_4)(Te^{4+}O_3)_4(Te^{6+}O_6)$, mon., green, **64**, 465 (1979)

☐ **Tobelite**, $(NH_4,K)Al_2(Si_3Al)O_{10}(OH)_2$, mon., *Mica* group, **68**, 850 (1983)

☐ **Tobermorite**, $Ca_5Si_6(O,OH)_{18}\cdot 5H_2O$, orth., compare **Clinotobermorite**, **39**, 1038 (1954)

☐ **Tochilinite**, $6Fe_{0.9}S\cdot 5(Mg,Fe^{2+})(OH)_2$, mon. or tric., bronze-black, compare **Haapalaite**, **Valleriite**, **Yushkinite**, **57**, 1552 (1972), **71**, 1201–1209 (1986)

☐ **Tocornalite**, silver mercury iodide, yellow, **58**, 348 (1973)

☐ **Todorokite**, $(Mn^{2+},Ca,Mg)Mn_3^{4+}O_7\cdot H_2O$, mon., compare **Woodruftite**, **20**, 678 (1935), **45**, 1167–1184 (1960), **64**, 1333–1334 (1979)

Toernebohmite = **Törnebohmite-(Ce)**

☐ **Tokkoite**, $K_2Ca_4Si_7O_{17}(O,OH,F)_4$, tric., light yellow, **73**, 196 (1988)

☐ **Tolbachite**, $Cu^{2+}Cl_2$, mon., brown to gold-brown, **69**, 408 (1984), **78**, 187–189 (1993)

☐ **Tolovkite**, IrSbS, cub., *Cobaltite* group, **67**, 1076–1077 (1982), **74**, 1168–1176 (1989)

☐ **Tombarthite-(Y)**, $Y_4(Si,H_4)_4O_{12-x}(OH)_{4+2x}$, mon., **54**, 327–328 (1969)

☐ **Tomichite**, $(V^{3+},Fe^{3+})_4Ti_3As^{3+}O_{13}(OH)$, mon., black, compare **Derbylite**, **65**, 811 (1980)

☐ **Tongbaite**, Cr_3C_2, (a carbide), orth., brownish-yellow, **70**, 218 (1985)

☐ **Tooeleite**, $Fe_8^{3+}(AsO_4)_6(OH)_6\cdot 5H_2O$, orth., cadmium-orange, **77**, 1306–1307 (1992)

☐ **Topaz**, $Al_2SiO_4(F,OH)_2$, orth.

Topazolite, a var. of **Andradite**

☐ **Torbernite**, $Cu^{2+}(UO_2)_2(PO_4)_2 \cdot 8–12H_2O$, tet., green, *Autunite* group

☐ **Törnebohmite-(Ce)**, $(Ce,La)_2Al(SiO_4)_2(OH)$, mon., **6**, 118 (1921), **67**, 1021–1028 (1982)

☐ **Törnebohmite-(La)**, $(La,Ce)_2Al(SiO_4)_2(OH)$, mon., *Can. Min.* **25**, 376 (1988)

☐ **Torreyite**, $(Mg,Mn^{2+})_9Zn_4(SO_4)_2(OH)_{22} \cdot 8H_2O$, mon., compare **Lawsonbauerite**, **34**, 589–595 (1949), **67**, 1029–1034 (1982)

☐ **Tosudite**, a clay mineral, 1:1 regular interstratification of *Chlorite* and *Smectite*, that is dioctahedral on average, mon. (?), **49**, 816 (1964), **67**, 394–398 (1982)

☐ **Tounkite**, $(Na,Ca,K)_8(Al_6Si_6O_{24})(SO_4)_2Cl \cdot H_2O$, hex., bottle-green, *Cancrinite* group, **79**, 187 (1994)

Tourmaline, see *Tourmaline* group

☐ **Toyohaite**, $Ag_2FeSn_3S_8$, tet., compare **Rhodostannite**, **77**, 1117 (1992)

☐ **Trabzonite**, $Ca_4Si_3O_{10} \cdot 2H_2O$, mon., **73**, 1497 (1988)

☐ **Tranquillityite**, $Fe_8^{2+}(Zr,Y)_2Ti_3Si_3O_{24}$, hex., **58**, 140–141 (1973)

☐ **Traskite**, $Ba_9Fe_2^{2+}Ti_2(SiO_3)_{12}(OH,Cl,F)_6 \cdot 6H_2O$, hex., **50**, 314–340, 1500–1503 (1965)

☐ **Treasurite**, $Ag_7Pb_6Bi_{15}S_{32}$, mon., **64**, 243 (1979)

☐ **Trechmannite**, $AgAsS_2$, trig., scarlet, dimorph. with **Smithite**

☐ **Trembathite**, $(Mg,Fe^{2+})_3B_7O_{13}Cl$, trig., dimorph. with **Boracite**, compare **Congolite**, **78**, 233 (1993)

☐ **Tremolite**, $Ca_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 1.0–0.9$, forms a series with **Actinolite** and **Ferro-actinolite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Trevorite**, $NiFe_2^{3+}O_4$, cub., *Spinel* group

☐ **Triangulite**, $Al_3(UO_2)_4(PO_4)_4(OH)_5 \cdot 5H_2O$, tric., yellow, **69**, 212 (1984)

☐ **Tridymite**, SiO_2, mon., ps. hex., also tric., polymorph. with **Coesite**, **Cristobalite**, **Quartz**, and **Stishovite**

☐ **Trigonite**, $Pb_3Mn^{2+}(As^{3+}O_3)_2(As^{3+}O_2OH)$, mon., **6**, 92 (1921)

☐ **Trikalsilite**, $(K,Na)AlSiO_4$, hex., polymorph. with **Kaliophilite**, **Kalsilite**, and **Panunzite**, **42**, 286 (1957)

☐ **Trimerite**, $CaMn_2^{2+}Be_3(SiO_4)_3$, mon., **12**, 381 (1927)

☐ **Trimounsite-(Y)**, $Y_2Ti_2SiO_9$, mon., light brown, *Eur. J. Min.* **2**, no. 5 (1990), **76**, 2024 (1991)

☐ **Triphylite**, $LiFe^{2+}PO_4$, orth., forms a series with **Lithiophilite**

☐ **Triplite**, $(Mn^{2+},Fe^{2+},Mg,Ca)_2(PO_4)(F,OH)$, mon., forms a series with **Zwieselite**, compare **Magniotriplite**, **36**, 256–271 (1951)

☐ **Triploidite**, $(Mn^{2+},Fe^{2+})_2(PO_4)(OH)$, mon., forms a series with **Wolfeite**, **34**, 692–698 (1949)

☐ **Trippkeite**, $Cu^{2+}As_2^{3+}O_4$, tet., greenish-blue, compare **Schafarzikite**

☐ **Tripuhyite**, $Fe^{2+}Sb_2^{5+}O_6$, tet., greenish-yellow, compare **Squawcreekite**, *Ferrotapiolite* group

☐ **Tristramite**, $(Ca,U^{4+},Fe^{3+})(PO_4,SO_4)\cdot 2H_2O$, hex., pale- to greenish-yellow, *Rhabdophane* group, **69**, 813 (1984)

☐ **Tritomite-(Ce)**, $(Ce,La,Y,Th)_5(Si,B)_3(O,OH,F)_{13}$ (?), trig.

☐ **Tritomite-(Y)** (Spencite), $(Y,Ca,La,Fe^{2+})_5(Si,B,Al)_3(O,OH,F)_{13}$ (?), trig. (?), **46**, 1204 (1961), **47**, 9–25 (1962)

☐ **Trögerite** (Troegerite), $(UO_2)_3(AsO_4)_2\cdot 12H_2O$ (?), tet. (?), lemon-yellow, *Autunite* group

☐ **Trogtalite**, $CoSe_2$, cub., violet, dimorph. with **Hastite**, *Pyrite* group, **41**, 164 (1956)

☐ **Troilite**, FeS, hex.

☐ **Trolleite**, $Al_4(PO_4)_3(OH)_3$, mon., **50**, 267 (1965), **59**, 974–984 (1974)

☐ **Trona**, $Na_3(CO_3)(HCO_3)\cdot 2H_2O$, mon.

Troostite = manganoan **Willemite**, $(Zn,Mn^{2+})_2SiO_4$

☐ **Truscottite**, $(Ca,Mn^{2+})_{14}Si_{24}O_{58}(OH)_8\cdot 2H_2O$, hex., compare **Minehillite**, **Reyerite**, **44**, 470 (1959), **53**, 511 (1968), *Min. Mag.* **43**, 333–336 (1979)

☐ **Trüstedtite**, Ni_3Se_4, cub., dimorph. with **Wilkmanite**, *Linnaeite* group, **50**, 520 (1965)

☐ **Tsaregorodtsevite**, $N(CH_3)_4[Si_2(Si_{0.5}Al_{0.5})O_6]_2$, orth.

Tsavolite, Tsavorite, a green gem var. of **Grossular**

Tscheffkinite = **Chevkinite**

☐ **Tschermakite**, $Ca_2(Mg,Fe^{2+})_3Al_2(Si_6Al_2)O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Ferrotschermakite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Tschermigite**, $(NH_4)Al(SO_4)_2\cdot 12H_2O$, cub., compare **Lonecreekite**, **Potassium alum**

☐ **Tschernichite**, $(Ca,Na)(Si_6Al_6)O_{16}\cdot 4–8H_2O$, tet., *Zeolite* group, **78**, 822–826 (1993)

Tsilaisite = manganoan **Elbaite**, **70**, 877–878 (1985)

☐ **Tsnigriite**, $Ag_9SbTe_3(S,Se)_3$, mon., **79**, 389–390 (1994)

☐ **Tsumcorite**, $PbZnFe^{2+}(AsO_4)_2\cdot H_2O$, mon., yellow, related to **Helmutwinklerite**, **Thometzekite**, compare **Mawbyite**, **57**, 1558 (1972)

☐ **Tsumebite**, $Pb_2Cu(PO_4)(SO_4)(OH)$, mon., emerald-green, *Brackebuschite* group, **51**, 258 (1966)

☐ **Tsumoite**, BiTe, trig., silver-white, compare **Sulphotsumoite**, **63**, 1162–1165 (1978), **76**, 257–265 (1991)

☐ **Tucekite**, $Ni_4Sb_2S_8$, tet., *Hauchecornite* group, **64**, 465 (1979)

☐ **Tugarinovite**, $Mo^{4+}O_2$, mon., dark lilac-brown, **66**, 438–439 (1981), **73**, 199 (1988)

☐ **Tugtupite**, $Na_4AlBeSi_4O_{12}Cl$, tet., **46**, 241 (1961), **48**, 1178 (1963)

☐ **Tuhualite**, $(Na,K)Fe^{2+}Fe^{3+}Si_6O_{15}$, orth., dark blue, compare **Zektzerite**, **41**, 959 (1956)

☐ **Tulameenite**, Pt_2FeCu, tet., forms a series with **Ferronickelplatinum**, **59**, 383–384 (1974)

☐ **Tuliokite**, $BaNa_6Th(CO_3)_6$, trig., light or dark gray, **76**, 668 (1991), **77**, 209 (1992)

☐ **Tundrite-(Ce)**, $Na_3(Ce,La)_4(Ti,Nb)_2(SiO_4)_2(CO_3)_3O_4(OH)\cdot 2H_2O$, tric., yellow, **50**, 2097 (1965), **53**, 1780 (1968), **59**, 633 (1974)

☐ **Tundrite-(Nd)**, $Na_3(Nd,La)_4(Ti,Nb)_2(SiO_4)_2(CO_3)_3O_4(OH)\cdot 2H_2O$, tric., **53**, 1780 (1968)

☐ **Tunellite**, $SrB_6O_9(OH)_2\cdot 3H_2O$, mon., **47**, 416 (1962)

☐ **Tungstenite**, WS_2, hex. and trig., polytypes are ***-2H*** and ***-3R***, compare **Drysdallite** and **Molybdenite**, **3**, 30 (1918), *Can. Min.* **10**, 729–732 (1970)

☐ **Tungstite**, $WO_3\cdot H_2O$, orth., yellow, **29**, 192–210 (1944)

☐ **Tungusite**, $Ca_4Fe_2^{2+}Si_6O_{15}(OH)_6$, green, **52**, 927–928 (1967)

☐ **Tunisite**, $NaCa_2Al_4(CO_3)_4(OH)_8Cl$, tet., **54**, 1–13 (1969), **67**, 418 (1982)

☐ **Tuperssuatsiaite**, $Na_2Fe_3^{3+}Si_8O_{20}(OH)_2\cdot 4H_2O$, mon., red-brown, compare **Palygorskite**, **Yofortierite**, **70**, 1332 (1985), **77**, 1308 (1992)

☐ **Turanite**, $Cu_5^{2+}(VO_4)_2(OH)_4$ (?), orth. (?), green

Turgite (Turjite) = **Hematite** with adsorbed water

☐ **Turneaureite**, $Ca_5[(As,P)O_4]_3Cl$, hex., *Apatite* group, **71**, 1280 (1986)

☐ **Turquoise**, $Cu^{2+}Al_6(PO_4)_4(OH)_8\cdot 4H_2O$, tric., blue to green, forms a series with **Chalcosiderite**, *Turquoise* group

☐ **Tuscanite**, $K(Ca,Na)_6(Si,Al)_{10}O_{22}(SO_4,CO_3,(OH)_2)\cdot H_2O$, mon., compare **Latiumite**, **62**, 1110–1113 (1977)

☐ **Tusionite**, $Mn^{2+}Sn^{4+}(BO_3)_2$, trig., yellow to yellow-brown, isostructural with **Nordenskiöldine** and the carbonates of the *Dolomite* group, **69**, 1193 (1984)

☐ **Tuzlaite**, $NaCaB_5O_8(OH)_2\cdot 3H_2O$, mon., **79**, 562–569 (1994)

☐ **Tvalchrelidzeite**, $Hg_3(Sb,As)S_3$, mon., **62**, 174 (1977), **74**, 949 (1989)

☐ **Tvedalite**, $(Ca,Mn^{2+})_4Be_3Si_6O_{17}(OH)_4\cdot 3H_2O$, orth., **77**, 438–443 (1992)

☐ **Tveitite-(Y)**, $Ca_{1-x}Y_xF_{2+x}$, $x \approx 0.3$, mon., ps. cub., **62**, 1060 (1977)

☐ **Twinnite**, $Pb(Sb,As)_2S_4$, tric., ps. orth., dimorph. with **Guettardite**, **53**, 1424 (1968)

☐ **Tychite**, $Na_6Mg_2(CO_3)_4(SO_4)$, cub., forms a series with **Ferrotychite**, compare **Northupite**, **Manganotychite**

☐ **Tyretskite**, $Ca_2B_5O_9(OH)\cdot H_2O$, tric., the polytype **-1*A***, compare **Hilgardite**, **53**, 2084–2087 (1968), **70**, 636–637 (1985)

☐ **Tyrolite**, $CaCu_5^{2+}(AsO_4)_2(CO_3)(OH)_4\cdot 6H_2O$, orth., green, compare **Clinotyrolite**, **42**, 123 (1957)

☐ **Tyrrellite**, $(Cu,Co,Ni)_3Se_4$, cub., *Linnaeite* group, **37**, 542–544 (1952)

Tysonite = **Fluocerite-(Ce)**

☐ **Tyuyamunite**, $Ca(UO_2)_2V_2O_8\cdot 5\text{–}8H_2O$, orth., yellow, compare **Carnotite**, **Margaritasite**

☐ **Uchucchacuaite**, $AgPb_3MnSb_5S_{12}$, mon., ps. orth., compare **Andorite**, **70**, 1332–1333 (1985)

Ugrandite, group name for the calcium garnets (**Andradite**, **Goldmanite**, **Grossular**, **Hibschite**, **Katoite**, **Kimzeyite**, **Schorlomite**, **Uvarovite**)

☐ **Uhligite**, $Ca_3(Ti,Al,Zr)_9O_{20}$ (?), cub.

☐ **Uklonskovite**, $NaMg(SO_4)F{\cdot}2H_2O$, mon., **50**, 520 (1965)

☐ **Ulexite**, $NaCaB_5O_6(OH)_6{\cdot}5H_2O$, tric., **44**, 712–719 (1959)

☐ **Ullmannite**, NiSbS, cub., forms a series with **Willyamite**, *Cobaltite* group, **62**, 369–373 (1977), *Can. Min.* **24**, 27–33 (1986)

☐ **Ulrichite**, $CaCu^{2+}(UO_2)(PO_4)_2{\cdot}4H_2O$, mon., pale to lime green, **75**, 243 (1990)

Ultramarine = synthetic **Lazurite**

Ulvite = **Ulvöspinel**

☐ **Ulvöspinel**, $TiFe_2^{2+}O_4$, cub., *Spinel* group, **40**, 138 (1955)

☐ **Umangite**, Cu_3Se_2, tet., red, tarnishes violet, **35**, 354–356 (1950)

☐ **Umbite**, $K_2ZrSi_3O_9{\cdot}H_2O$, orth., dimorph. with **Kostylevite**, **69**, 813–814 (1984)

☐ **Umbozerite**, $Na_3Sr_4ThSi_8(O,OH)_{24}$, amor., bottle-green to greenish-brown, **60**, 341 (1975)

☐ **Umohoite**, $(UO_2)MoO_4{\cdot}4H_2O$, mon. and orth., dark blue, **42**, 657–660 (1957)

☐ **Ungemachite**, $K_3Na_8Fe^{3+}(SO_4)_6(NO_3)_2{\cdot}6H_2O$, trig., **23**, 314–328 (1938), **71**, 826–829 (1986)

Ungursaite = sodian **Calciotantite** (?), **71**, 1546–1547 (1986)

☐ **Upalite**, $Al(UO_2)_3(PO_4)_2O(OH)\cdot 7H_2O$, mon., amber-yellow, **65**, 208 (1980)

☐ **Uralborite**, $CaB_2O_2(OH)_4$, mon., dimorph. with **Vimsite**, **47**, 1482 (1962)

Uralite, an *Amphibole* pseudomorphous after a *Pyroxene*

☐ **Uralolite**, $Ca_2Be_4(PO_4)_3(OH)_3\cdot 5H_2O$, mon., **49**, 1776 (1964), *Mineral. Rec.* **9**, 99–100 (1975)

☐ **Uramphite**, $(NH_4)_2(UO_2)_2(PO_4)_2\cdot 6H_2O$, orth. (?), green, *Meta-autunite* group, **44**, 464 (1959)

☐ **Urancalcarite**, $Ca(UO_2)_3(CO_3)(OH)_6\cdot 3H_2O$, orth., yellow, **70**, 438–439 (1985)

☐ **Uraninite**, essentially UO_2, but usually partially oxidized, cub., forms a series with **Thorianite**, compare **Cerianite**

Uranite, a general term for minerals of the *Autunite* and *Meta-autunite* groups

☐ **Uranmicrolite** (Djalmaite), $(U,Ca,Ce)_2(Ta,Nb)_2O_6(OH,F)$, cub., *Pyrochlore* group, **62**, 403–410 (1977)

☐ **Uranocircite**, $Ba(UO_2)_2(PO_4)_2\cdot 12H_2O$, tet., yellow-green, *Autunite* group

☐ **Uranophane**, $Ca(UO_2)_2[SiO_3(OH)]_2\cdot 5H_2O$, mon., yellow, dimorph. with **Uranophane-beta**, **24**, 324–328 (1939), **71**, 1489–1493 (1986)

☐ **Uranophane-beta**, $Ca(UO_2)_2[SiO_3(OH)]_2\cdot 5H_2O$, mon., yellow, dimorph. with **Uranophane**, **66**, 610–625 (1981), **71**, 1489–1493 (1986)

☐ **Uranopilite**, $(UO_2)_6(SO_4)(OH)_{10}\cdot 12H_2O$, mon., yellow, **37**, 950–959 (1952)

☐ **Uranopolycrase**, $(U,Y)(Ti,Nb)_2O_6$, orth., brown-red, compare **Polycrase-(Y)**, **79**, 766 (1994)

☐ **Uranosilite**, $U^{6+}Si_7O_{17}$, orth., yellowish, **69**, 408–409 (1984)

☐ **Uranospathite**, $HAl(UO_2)_4(PO_4)_4\cdot 40H_2O$, tet., yellow, **64**, 465 (1979)

☐ **Uranosphaerite**, $Bi_2U_2O_9\cdot 3H_2O$, mon., orange

☐ **Uranospinite**, $Ca(UO_2)_2(AsO_4)_2 \cdot 10H_2O$, tet., yellow to green, *Autunite* group

Uranotile = **Uranophane**

Uranotile-beta = **Uranophane-beta**

☐ **Uranotungstite**, $(Ba,Pb,Fe^{2+})(UO_2)_2(WO_4)(OH)_4 \cdot 12H_2O$, orth., yellow, orange, brownish, **71**, 1547 (1986)

☐ **Uranpyrochlore**, $(U,Ca,Ce)_2(Nb,Ta)_2O_6(OH,F)$, cub., *Pyrochlore* group, **62**, 403–410 (1977)

☐ **Urea**, $CO(NH_2)_2$, tet., **59**, 874 (1974)

Ureyite = **Kosmochlor** (decision of I.M.A. Commission, 1984)

☐ **Uricite**, $C_5H_4N_4O_3$, (2,6,8-trihydroxypurine), mon., *Min. Mag.* **39**, 889–890 (1974)

☐ **Urvantsevite**, $Pd(Bi,Pb)_2$, tet., **62**, 1260–1261 (1977), **76**, 2025–2026 (1991)

☐ **Ushkovite**, $MgFe^{3+}_2(PO_4)_2(OH)_2 \cdot 8H_2O$, tric., yellowish to orange, *Paravauxite* group, **69**, 212–213 (1984)

☐ **Usovite**, $Ba_2CaMgAl_2F_{14}$, mon., **52**, 1582 (1967), **60**, 739 (1975)

☐ **Ussingite**, $Na_2AlSi_3O_8(OH)$, tric., reddish-violet, **59**, 335–340 (1974)

☐ **Ustarasite**, $Pb(Bi,Sb)_6S_{10}$, **41**, 814 (1956)

☐ **Uvanite**, $U^{6+}_2V^{5+}_6O_{21} \cdot 15H_2O$ (?), orth. (?), brownish-yellow

☐ **Uvarovite**, $Ca_3Cr_2(SiO_4)_3$, cub., green, forms a series with **Grossular**, *Garnet* group

☐ **Uvite**, $(Ca,Na)(Mg,Fe^{2+})_3Al_5Mg(BO_3)_3Si_6O_{18}(OH,F)_4$, trig., *Tourmaline* group

☐ **Uytenbogaardtite**, Ag_3AuS_2, tet., **65**, 209 (1980)

☐ **Uzonite** (Usonite), As_4S_5, mon., yellow, **71**, 1280 (1986)

☐ **Vaesite**, NiS_2, cub., forms a series with **Cattierite**, *Pyrite* group, **30**, 483–497 (1945)

☐ **Valentinite**, Sb_2O_3, orth., dimorph. with **Senarmontite**

☐ **Valleriite**, $4(Fe,Cu)S \cdot 3(Mg,Al)(OH)_2$, hex., compare **Haapalaite**, **Tochilinite**, **Yushkinite**, **57**, 1037–1052 (1972)

☐ **Vanadinite**, $Pb_5(VO_4)Cl$, hex., orange to red, *Apatite* group

☐ **Vanalite**, $NaAl_8V_{10}O_{38} \cdot 30H_2O$, mon., bright yellow, **48**, 1180 (1963), **57**, 597 (1972)

☐ **Vandenbrandeite**, $Cu^{2+}(UO_2)(OH)_4$, tric., dark green, **18**, 179 (1933), **36**, 394–410 (1951)

☐ **Vandendriesscheite**, $PbU_7^{6+}O_{22} \cdot 12H_2O$, orth., orange, **33**, 384 (1948), **45**, 1026–1061 (1960)

☐ **Vanmeersscheite**, $U^{6+}(UO_2)_3(PO_4)_2(OH)_6 \cdot 4H_2O$, orth., yellow, **67**, 1077 (1982)

☐ **Vanoxite**, $V_4^{4+}V_2^{5+}O_{13} \cdot 8H_2O$ (?), black, **10**, 40 (1925)

☐ **Vantasselite**, $Al_4(PO_4)_3(OH)_3 \cdot 9H_2O$, orth., **73**, 931 (1988)

☐ **Vanthoffite**, $Na_6Mg(SO_4)_4$, mon.

☐ **Vanuralite**, $Al(UO_2)_2V_2^{5+}O_8(OH) \cdot 11H_2O$, mon., lemon-yellow, **48**, 1415 (1963), **56**, 639 (1971)

☐ **Vanuranylite**, $(H_3O,Ba,Ca,K)_{1.6}(UO_2)_2V_2^{5+}O_8 \cdot 4H_2O$ (?), orth. (?), yellow, **51**, 1548 (1966)

☐ **Variscite**, $AlPO_4 \cdot 2H_2O$, orth., dimorph. with **Metavariscite**, forms a series with **Strengite**, *Variscite* group, **57**, 36–44 (1972)

Varlamoffite, $(Sn,Fe)(O,OH)_2$, perhaps a var. of **Cassiterite**, tet., yellow, **34**, 618 (1949)

☐ **Varulite**, $(Na,Ca)Mn^{2+}(Mn^{2+},Fe^{2+},Fe^{3+})_2(PO_4)_3$, mon., forms a series with **Hagendorfite**, *Alluaudite* group

☐ **Vashegyite**, $Al_{11}(PO_4)_9(OH)_6 \cdot 38H_2O$, or $Al_6(PO_4)_5(OH)_3 \cdot 23H_2O$, orth., *Min. Mag.* **39**, 802 (1974), *Can. Min.* **21**, 489–498 (1983)

☐ **Vasilite**, $(Pd,Cu)_{16}(S,Te)_7$, cub., *Can. Min.* **28**, 687–689 (1990)

☐ **Vaterite**, $CaCO_3$, hex., trimorph. with **Aragonite** and **Calcite**, **45**, 1316 (1960)

☐ **Vaughanite**, $TlHgSb_4S_7$, tric., **75**, 710–711 (1990)

☐ **Vauquelinite**, $Pb_2Cu^{2+}(CrO_4)(PO_4)(OH)$, mon., green to brown, compare **Fornacite**, **Molybdofornacite**

☐ **Vauxite**, $Fe^{2+}Al_2(PO_4)_2(OH)_2 \cdot 6H_2O$, tric., blue, **7**, 108 (1922), **53**, 1025 (1968)

☐ **Väyrynenite**, $Mn^{2+}Be(PO_4)(OH,F)$, mon., rose-red, **39**, 848 (1954), **41**, 371 (1956)

☐ **Veatchite**, $Sr_2B_{11}O_{16}(OH)_5 \cdot H_2O$, mon., trimorph. with **p-Veatchite** and **Veatchite-A**, **23**, 409–411 (1938), **56**, 1934–1954 (1971)

☐ **Veatchite-A**, $Sr_2B_{11}O_{16}(OH)_5 \cdot H_2O$, tric., trimorph. with **Veatchite** and **p-Veatchite**, **64**, 362–366 (1979)

☐ **Veenite**, $Pb_2(Sb,As)_2S_5$, orth., compare **Cosalite**, **53**, 1422 (1968)

Vegasite = **Plumbojarosite** (?)

☐ **Velikite**, $(Cu,Hg)_{11}Sn_4S_{16}$, tet., *Stannite* group, **62**, 1260 (1977), **75**, 933 (1990)

Verdelite, a green mineral of the *Tourmaline* group

☐ **Vermiculite**, a group of silicates of general formula $(Mg,Fe^{2+},Al)_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$, mon.

☐ **Vernadite**, $(\delta\text{-}MnO_2)(Mn^{4+},Fe^{3+},Ca,Na)(O,OH)_2 \cdot nH_2O$, hex., compare **Akhtenskite**, **Nsutite**, **Pyrolusite**, **Ramsdellite**, **64**, 1334 (1979)

☐ **Verplanckite**, $Ba_2(Mn^{2+},Fe^{2+},Ti)Si_2O_6(O,OH,Cl,F)_2 \cdot 3H_2O$, hex., **50**, 314–340, 1500–1503 (1965)

☐ **Versiliaite**, $Fe_3^{2+}Fe_8^{3+}Sb_{12}^{3+}O_{32}S_2$, orth., black, **64**, 1230–1242 (1979), **66**, 1073–1074 (1981)

☐ **Vertumnite**, $Ca_8Al_4(Al_4Si_8)O_{12}(OH)_{36} \cdot 10H_2O$, mon., ps. hex., **62**, 1061 (1977), *Eur. J. Min.* **2**, 841–849 (1990)

☐ **Vesignieite**, $BaCu_3^{2+}(VO_4)_2(OH)_2$, mon., yellow-green to dark olive-green, **40**, 942 (1955)

☐ **Vesuvianite**, $Ca_{10}Mg_2Al_4(SiO_4)_5(Si_2O_7)_2(OH)_4$, tet.

☐ **Veszelyite**, $(Cu^{2+},Zn)_3(PO_4)(OH)_3 \cdot 2H_2O$, mon., greenish-blue

☐ **Vigezzite**, $(Ca,Ce)(Nb,Ta,Ti)_2O_6$, orth., orange-yellow, compare **Aeschynite-(Ce)**, **Rynersonite**, **65**, 811–812 (1980)

☐ **Viitaniemiite**, $Na(Ca,Mn^{2+})Al(PO_4)(F,OH)_3$, mon., **66**, 1102 (1981)

☐ **Vikingite**, $Ag_5Pb_8Bi_{13}S_{30}$, mon., **64**, 243 (1979)

☐ **Villamaninite**, $(Cu,Ni,Co,Fe)S_2$, cub., *Pyrite* group, **5**, 168 (1920), **74**, 1173 (1989)

☐ **Villiaumite**, NaF, cub., red, yellow

☐ **Villyaellenite**, $(Mn^{2+},Ca,Zn)_5(AsO_4)_2[AsO_3(OH)]_2 \cdot 4H_2O$, mon., colorless to bright pink, compare **Hureaulite**, **Sainfeldite**, **73**, 1172–1178 (1988)

☐ **Vimsite**, $CaB_2O_2(OH)_4$, mon., dimorph. with **Uralborite**, **54**, 1219–1220 (1969)

☐ **Vincentite**, $(Pd,Pt)_3(As,Sb,Te)$ (?), **59**, 1332 (1974)

☐ **Vinciennite**, $Cu_{10}Fe_4Sn(As,Sb)S_{16}$, tet., ps. cub., orange, **71**, 1280–1281 (1986)

☐ **Vinogradovite**, $(Na,Ca,K)_4Ti_4AlSi_6O_{23}(OH) \cdot 2H_2O$, mon., **42**, 308 (1957)

Violan, a violet var. of the *Pyroxene* group, **65**, 813 (1980)

☐ **Violarite**, $Fe^{2+}Ni_2^{3+}S_4$, cub., *Linnaeite* group

☐ **Virgilite**, $Li_xAl_xSi_{3-x}O_6$, hex., **63**, 461–465 (1978)

Viridine, $(Al,Mn^{3+})_2SiO_5$ = manganian **Andalusite**, green

☐ **Viseite**, $Ca_{10}Al_{24}(SiO_4)_6(PO_4)_7O_{22}F_3 \cdot 72H_2O$ (?), cub., **37**, 609–617 (1952) **63**, 796 (1978)

☐ **Vishnevite**, $(Na,Ca,K)_6(Si,Al)_{12}O_{24}[(SO_4),(CO_3),Cl_2]_{2-4} \cdot nH_2O$, hex, *Cancrinite* group

☐ **Vismirnovite**, $ZnSn^{4+}(OH)_6$, cub., light yellow, *Schoenfliesite* group, **67**, 1077 (1982)

☐ **Vistepite**, $Mn_5^{2+}Sn^{4+}B_2Si_5O_{20}$, mon.

☐ **Vitusite-(Ce)**, $Na_3(Ce,La,Nd)(PO_4)_2$, orth., **65**, 812 (1980), *Min. Mag.* **56**, 235–237 (1992)

☐ **Vivianite**, $Fe_3^{2+}(PO_4)_2 \cdot 8H_2O$, mon., blue, *Vivianite* group

☐ **Vladimirite**, $Ca_5H_2(AsO_4)_4 \cdot 5H_2O$, mon., **50**, 813 (1965), **56**, 639 (1971)

☐ **Vlasovite**, $Na_2ZrSi_4O_{11}$, mon. and tric., **46**, 1202 (1961)

☐ **Vochtenite**, $(Fe^{2+},Mg)Fe^{2+}[(UO_2)(PO_4)]_4(OH) \cdot 12–13H_2O$, mon., brown, *Min. Mag.* **53**, 473–478 (1989), **75**, 1212 (1990)

☐ **Voggite**, $Na_2Zr(PO_4)(CO_3)(OH) \cdot 2H_2O$, mon., *Can. Min.* **28**, 155–159 (1990)

☐ **Voglite**, $Ca_2Cu^{2+}(UO_2)(CO_3)_4 \cdot 6H_2O$ (?), mon., green

☐ **Volborthite**, $Cu_3^{2+}V_2^{5+}O_7(OH)_2 \cdot 2H_2O$, mon., dark green, **59**, 372–373 (1974), **76**, 671 (1991)

Volchonskoite = **Volkonskoite**

Volfsonite, $Cu_{10}^{1+}Cu^{2+}Fe^{2+}Fe_2^{3+}Sn_3^{4+}S_{16}$, hex., **73**, 441 (1985)

☐ **Volkonskoite**, $Ca_{0.3}(Cr^{3+},Mg,Fe^{3+})_2(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$, mon., green, *Smectite* group, **73**, 934 (1988)

☐ **Volkovskite**, $KCa_4[B_5O_8(OH)]_4[B(OH)_3]_2Cl\cdot 4H_2O$, tric., *Can. Min.* **28**, 351–356 (1990)

☐ **Voltaite**, $K_2Fe^{2+}_5Fe^{3+}_4(SO_4)_{12}\cdot 18H_2O$, cub., compare **Zincovoltaite**

Voltzite = **Wurtzite** mixed with an organometallic zinc compound, **52**, 617–634 (1967)

☐ **Volynskite**, $AgBiTe_2$, orth., compare **Bohdanowiczite**, **Matildite**, **51**, 531 (1966)

☐ **Vonbezingite**, $Ca_6Cu^{2+}_3(SO_4)_3(OH)_{12}\cdot 2H_2O$, mon., deep azure blue, **77**, 1292–1300 (1992)

☐ **Vonsenite**, $Fe^{2+}_2Fe^{3+}BO_5$, orth., forms a series with **Ludwigite**, *Ludwigite* group

Vorobievite = a cesium-rich var. of **Beryl**

☐ **Vozhminite**, $(Ni,Co)_4(As,Sb)S_2$, hex., **68**, 645 (1983)

☐ **Vrbaite**, $Tl_4Hg_3Sb_2As_8S_{20}$, orth., **53**, 351 (1968)

☐ **Vuagnatite**, $CaAlSiO_4(OH)$, orth., compare **Mozartite**, **61**, 825–838 (1976)

☐ **Vulcanite**, CuTe, orth., bronze-colored, **46**, 258–268 (1961)

☐ **Vuonnemite**, $Na_5Nb_3Ti(Si_2O_7)_3O_2F_2\cdot 2Na_3PO_4$, tric., **59**, 875 (1974)

☐ **Vuorelainenite**, $(Mn^{2+},Fe^{2+})(V^{3+},Cr^{3+})_2O_4$, cub., forms a series with **Manganochromite**, *Spinel* group, **68**, 472–473 (1983)

☐ **Vyacheslavite**, $U^{4+}(PO_4)(OH)\cdot 2.5H_2O$, orth., green, **70**, 878 (1985)

☐ **Vyalsovite**, $FeS\cdot Ca(OH)_2\cdot Al(OH)_3$, orth., crimson, **77**, 201–206 (1992)

☐ **Vysotskite**, (Pd,Ni)S, tet., forms a series with **Braggite**, **48**, 708 (1963)

☐ **Vyuntspakhkite-(Y)**, $Y_4Al_2AlSi_5O_{18}(OH)_5$, mon., **69**, 1193 (1984)

Wad, a general term for soft, massive manganese oxides of low density, not specifically identified, compare Psilomelane

☐ **Wadalite**, $Ca_6Al_5Si_2O_{16}Cl_3$, cub., black to dark gray, *Acta Cryst.* **C49**, 205–207 (1993), **78**, 1317 (1993)

☐ **Wadeite**, $K_2CaZr(SiO_3)_4$, hex., **25**, 254 (1940)

☐ **Wadsleyite**, β-$(Mg,Fe^{2+})_2SiO_4$, orth., trimorph. with **Forsterite** and **Ringwoodite**, **68**, 1040 (1983)

☐ **Wagnerite**, $(Mg,Fe^{2+})_2(PO_4)F$, mon.

☐ **Wairakite**, $CaAl_2Si_4O_{12}\cdot 2H_2O$, mon., *Zeolite* group, **41**, 166 (1956)

☐ **Wairauite**, CoFe, cub., **50**, 521 (1965)

☐ **Wakabayashilite**, $(As,Sb)_{11}S_{18}$, mon., golden-yellow, **57**, 1311–1312 (1972)

☐ **Wakefieldite-(Ce)** (Kusuite), $(Ce^{3+},Pb^{2+},Pb^{4+})VO_4$, tet., black, **62**, 1058 (1977), **73**, 934 (1988)

☐ **Wakefieldite-(Y)**, YVO_4, tet., compare **Chernovite-(Y)** and **Xenotime-(Y)**, **55**, 1446 (1970), **56**, 395–410 (1971)

☐ **Walentaite**, $H(Ca,Mn^{2+},Fe^{2+})Fe_3^{3+}(AsO_4,PO_4)_4\cdot 7H_2O$, orth., bright yellow, **69**, 1193–1194 (1984)

☐ **Wallisite**, $PbTl(Cu,Ag)As_2S_5$, tric., compare **Hatchite**, **51**, 532 (1966), **54**, 1497 (1969)

☐ **Wallkilldellite**, $Ca_4Mn_6^{2+}As_4^{5+}O_{16}(OH)_8\cdot 18H_2O$, hex., dark red, compare **Kittatinnyite**, **68**, 1029–1032 (1983)

☐ **Walpurgite**, $Bi_4(UO_2)(AsO_4)_2O_4\cdot 2H_2O$, tric., yellow, **68**, 852 (1983)

☐ **Walstromite**, $BaCa_2Si_3O_9$, tric., **50**, 314–340 (1965), **53**, 9–13 (1968)

☐ **Walthierite**, $BaAl_6(SO_4)_4(OH)_{12}$, trig., *Alunite* group, **77**, 1275–1284 (1992)

☐ **Wardite**, $NaAl_3(PO_4)_2(OH)_4 \cdot 2H_2O$, tet., compare **Cyrilovite**

☐ **Wardsmithite**, $Ca_5MgB_{24}O_{42} \cdot 30H_2O$, hex., **55**, 349–357 (1970)

☐ **Warikahnite**, $Zn_3(AsO_4)_2 \cdot 2H_2O$, tric., pale yellow to colorless, **65**, 408 (1980)

☐ **Warwickite**, $(Mg,Ti,Fe^{3+},Al)_2(BO_3)O$, orth., **59**, 985–1004 (1974)

☐ **Watanabeite**, $Cu_4(As,Sb)_2S_5$, orth., *Min. Mag.* **57**, 643–649 (1993)

☐ **Watkinsonite**, $PbCu_2Bi_4(Se,S,Te)_8$, mon., **74**, 948 (1989)

☐ **Wattersite**, $Hg_4^{1+}Hg^{2+}Cr^{6+}O_6$, mon., dark reddish-brown, *Mineral. Rec.* **22**, 269–272 (1991), **77**, 672 (1992)

☐ **Wattevillite**, $Na_2Ca(SO_4)_2 \cdot 4H_2O$ (?), orth. or mon.

☐ **Wavellite**, $Al_3(PO_4)_2(OH,F)_3 \cdot 5H_2O$, orth.

☐ **Wawayandaite**, $Ca_{12}Mn_4^{2+}B_2Be_{18}Si_{12}O_{46}(OH,Cl)_{30}$, mon., **75**, 405–408 (1990)

☐ **Waylandite**, $(Bi,Ca)Al_3(PO_4,SiO_4)_2(OH)_6$, trig., *Crandallite* group, **48**, 216 (1963), **73**, 199 (1988)

☐ **Weberite**, Na_2MgAlF_7, orth., **24**, 278 (1939)

☐ **Weddellite**, $Ca(C_2O_4) \cdot 2H_2O$, (calcium oxalate), tet.

☐ **Weeksite**, $K_2(UO_2)_2Si_6O_{15} \cdot 4H_2O$, orth., yellow, **45**, 39–52 (1960)

☐ **Wegscheiderite**, $Na_5(CO_3)(HCO_3)_3$, tric., **48**, 400–403 (1963)

Wehrlite = a mixt. of **Pilsenite** and **Hessite**, **69**, 215 (1984)

☐ **Weibullite**, $Pb_6Bi_8(S,Se)_{18}$, orth., **56**, 639 (1971), **62**, 397 (1977)

Weilerite, $BaAl_3H[(As,P)O_4]_2(OH)_6$ (?), trig., *Beudantite* group, **47**, 415 (1962), **52**, 1588 (1967)

☐ **Weilite**, $CaHAsO_4$, tric., compare **Monetite**, **49**, 816 (1964)

☐ **Weinebeneite**, $CaBe_3(PO_4)_2(OH)_2 \cdot 4H_2O$, mon., *Eur. J. Min.* **4**, 1275–1283 (1992), **78**, 847–848 (1993)

Weinschenkite = **Churchite-(Y)**, **39**, 851 (1954)

☐ **Weishanite**, $(Au,Ag)_3Hg_2$, hex., pale yellow

☐ **Weissbergite**, $TlSbS_2$, tric., **63**, 720–724 (1978)

☐ **Weissite**, $Cu_{2-x}Te$, hex., ps. cub., bluish-black, **34**, 357–358 (1949)

☐ **Welinite**, $Mn_6(W^{6+},Mg)_2Si_2(O,OH)_{14}$, hex., compare **Franciscanite**, **Örebroite**, **53**, 1064 (1968), **71**, 1522–1526 (1986)

☐ **Wellsite**, $(Ba,Ca,K_2)Al_2Si_6O_{16} \cdot 6H_2O$, mon., compare **Harmotome**, **Phillipsite**, *Zeolite* group

☐ **Weloganite**, $Sr_3Na_2Zr(CO_3)_6 \cdot 3H_2O$, tric., ps. trig., lemon-yellow to amber, compare **Donnayite-(Y)**, **Mckelveyite-(Y)**, **54**, 576 (1969), *Can. Min.* **13**, 209–216 (1974)

☐ **Welshite**, $Ca_2Sb^{5+}Mg_4Fe^{3+}Si_4Be_2O_{20}$, tric., reddish-black, *Aenigmatite* group, **64**, 244 (1979)

☐ **Wendwilsonite**, $Ca_2(Mg,Co)(AsO_4)_2 \cdot 2H_2O$, mon., pink, forms a series with **Roselite**, *Roselite* group, **72**, 217–221 (1987)

☐ **Wenkite**, $Ba_4Ca_6(Si,Al)_{20}O_{39}(OH)_2(SO_4)_3 \cdot nH_2O$ (?), hex., *Cancrinite* group (?), **48**, 213 (1963), *Min. Abs.* **29**, 263 (1978)

☐ **Werdingite**, $(Mg,Fe^{2+})_2Al_{14}B_4Si_4O_{37}$, tric., brownish-yellow, **75**, 415–420 (1990), **76**, 246–251 (1991)

☐ **Wermlandite**, $(Ca,Mg)Mg_7(Al,Fe^{3+})_2(SO_4)_2(OH)_{18} \cdot 12H_2O$, hex., related to the *Hydrotalcite* group, **57**, 327 (1972), *Zeit. Krist.* **168**, 133–144 (1984)

Wernerite, a member of the *Scapolite* group, intermediate between **Marialite** and **Meionite**

☐ **Westerveldite**, (Fe,Ni)As, orth., **57**, 354–363 (1972)

☐ **Wheatleyite**, $Na_2Cu^{2+}(C_2O_4)_2 \cdot 2H_2O$ (an oxalate), tric., blue, **71**, 1240–1242 (1986)

☐ **Wherryite**, $Pb_7Cu_2^{2+}(SO_4)_4(SiO_4)_2(OH)_2$, mon., light green, **35**, 93–98 (1950), **55**, 505 (1970), *Can. Min.* **32**, 373–380 (1994)

☐ **Whewellite**, $CaC_2O_4 \cdot H_2O$, (calcium oxalate), mon.

☐ **Whiteite-(CaFeMg)**, $Ca(Fe^{2+},Mn^{2+})Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$, mon., tan, *Whiteite* group, **64**, 465–466 (1979)

☐ **Whiteite-(CaMnMg)**, $CaMn^{2+}Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$, mon., yellow, greenish-yellow, pink, *Whiteite* group, **75**, 933 (1990)

☐ **Whiteite-(MnFeMg)**, $(Mn^{2+},Ca)(Fe^{2+},Mn^{2+})Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$, mon., tan, *Whiteite* group, **64**, 465–466 (1979)

☐ **Whitlockite**, $Ca_9(Mg,Fe^{2+})(PO_4)_6[PO_3(OH)]$, trig., compare **Strontiowhitlockite**, isostructural with the silicate **Cerite-(Ce)**, **26**, 145–152 (1941)

☐ **Whitmoreite**, $Fe^{2+}Fe_2^{3+}(PO_4)_2(OH)_2 \cdot 4H_2O$, mon., *Arthurite* group, **59**, 900–905 (1974)

☐ **Wickenburgite**, $Pb_3CaAl_2Si_{10}O_{24}(OH)_6$, hex., **53**, 1433–1438 (1968)

☐ **Wickmanite**, $Mn^{2+}Sn^{4+}(OH)_6$, cub., yellow, dimorph. with **Tetrawickmanite**, *Schoenfliesite* group, **53**, 1063 (1968), **56**, 1488 (1971)

☐ **Wicksite**, $NaCa_2(Fe^{2+},Mn^{2+})_4MgFe^{3+}(PO_4)_6 \cdot 2H_2O$, orth., dark blue to dark green, **67**, 1077–1078 (1982)

☐ **Widenmannite**, $Pb_2(UO_2)(CO_3)_3$, orth., yellow, **47**, 415 (1962)

☐ **Widgiemoolthalite**, $(Ni,Mg)_5(CO_3)_4(OH)_2 \cdot 4–5H_2O$, mon., bluish green, compare **Hydromagnesite**, **78**, 819–821 (1993)

☐ **Wightmanite**, $Mg_5(BO_3)O(OH)_5 \cdot 2H_2O$, mon., **47**, 718–722 (1962), **59**, 985–1004 (1974)

☐ **Wilcoxite**, $MgAl(SO_4)_2F \cdot 18H_2O$, tric., **69**, 408 (1984)

☐ **Wilhelmvierlingite**, $CaMn^{2+}Fe^{3+}(PO_4)_2(OH) \cdot 2H_2O$, orth., *Overite* group, **69**, 568 (1984)

Wilkeite = silicatian sulfatian **Apatite** or phosphatian **Fluorellestadite**

☐ **Wilkinsonite**, $Na_2Fe^{2+}_4Fe^{3+}_2Si_6O_{20}$, tric., black, *Aenigmatite* group, **75**, 694–701 (1990)

☐ **Wilkmanite**, Ni_3Se_4, mon., dimorph. with **Trüstedtite**, **50**, 519 (1965)

☐ **Willemite**, Zn_2SiO_4, trig.

☐ **Willemseite**, $(Ni,Mg)_3Si_4O_{10}(OH)_2$, mon., light green, compare **Talc**, **Minnesotaite**, **54**, 1740 (1969), **55**, 31–42 (1970)

☐ **Willhendersonite**, $KCaAl_3Si_3O_{12}{\cdot}5H_2O$, tric., *Zeolite* group, **69**, 186–189 (1984)

☐ **Willyamite**, (Co,Ni)SbS, ps. cub., mon. or tric., forms a series with **Ullmannite**, *Cobaltite group*, **56**, 361 (1971)

☐ **Winchite**, $NaCa(Mg,Fe^{2+})_4AlSi_8O_{22}(OH)_2$, mon., $Mg/(Mg + Fe^{2+}) = 0.5–1.0$, forms a series with **Ferrowinchite**, *Amphibole* group, **63**, 1023–1052 (1978)

☐ **Winstanleyite**, $TiTe^{4+}_3O_8$, cub., yellow, **65**, 809 (1980)

☐ **Wiserite**, $(Mn^{2+},Mg)_{14}B_8(Si,Mg)O_{22}(OH)_{10}Cl$, tet., **45**, 258 (1960), **74**, 1351–1354 (1989)

☐ **Witherite**, $BaCO_3$, orth., *Aragonite* group

☐ **Wittichenite**, Cu_3BiS_3, orth.

☐ **Wittite**, $Pb_3Bi_4(S,Se)_9$, mon., **62**, 397 (1977), selenian **Cannizzarite** (?), **78**, 238 (1993)

☐ **Wodginite**, $Mn^{2+}(Sn^{4+},Ta)Ta_2O_8$, mon., compare **Ferrowodginite**, **Lithiowodginite**, and **Titanowodginite**, **48**, 1417 (1963)

Woehlerite = **Wöhlerite**

Woelsendorfite = **Wölsendorfite**

☐ **Wöhlerite**, $NaCa_2(Zr,Nb)Si_2O_7(O,OH,F)_2$, mon.

Wolchonskoite = **Volkonskoite**

☐ **Wolfeite**, $(Fe^{2+},Mn^{2+})_2(PO_4)(OH)$, mon., dimorph. with **Satterlyite**, forms a series with **Triploidite**, **34**, 692–698 (1949)

☐ **Wolframite**, an intermediate member of the series **Hübnerite-Ferberite**

Wolframoixiolite, $(Nb,W,Ta,Fe^{2+},Mn^{2+})_3O_6$, mon., (a dubious mineral), **55**, 318 (1970)

☐ **Wollastonite**, $CaSiO_3$, mon. and tric., polytypes ***-1A***, ***-2M***, ***-3A***, ***-4A***, ***-5A***, and ***-7A***, **64**, 658 (1979)

☐ **Wölsendorfite**, $(Pb,Ca)U_2O_7 \cdot 2H_2O$, orth., orange-red, **42**, 919 (1957)

☐ **Wonesite**, $(Na,K)_{0.5}(Mg,Fe,Al)_3(Si,Al)_4O_{10}(OH,F)_2$, mon., *Mica* group, **66**, 100–105 (1981)

☐ **Woodhouseite**, $CaAl_3(PO_4)(SO_4)(OH)_6$, trig., *Beudantite* group, **22**, 939–948 (1937)

☐ **Woodruffite**, $(Zn,Mn^{2+})Mn^{4+}_3O_7 \cdot 1–2H_2O$, mon., compare **Todorokite**, **38**, 761–769 (1953)

Wood Tin, a var. of **Cassiterite**

☐ **Woodwardite**, $Cu^{2+}_4Al_2(SO_4)(OH)_{12} \cdot 2–4H_2O$ (?), greenish-blue

☐ **Wroewolfeite**, $Cu^{2+}_4(SO_4)(OH)_6 \cdot 2H_2O$, mon., greenish-blue, dimorph. with **Langite**, **61**, 179 (1976)

Wuestite = **Wüstite**

☐ **Wulfenite**, $PbMoO_4$, tet., yellow to orange, compare **Stolzite**

☐ **Wülfingite**, $Zn(OH)_2$, orth., trimorph. with **Ashoverite** and **Sweetite**, **73**, 196–197 (1988)

☐ **Wurtzite**, (Zn,Fe)S, hex. and trig. polytypes ***-2H***, ***-4H***, ***-6H***, ***-8H***, ***-15R***, ***-18R***, ***-21R***, trimorph. with **Matraite** and **Sphalerite**, compare with **Cadmoselite**, **Greenockite**, **35**, 29–42 (1950)

☐ **Wüstite**, $Fe^{2+}O$, cub., *Periclase* group

☐ **Wyartite**, $Ca,U^{4+}(UO_2)_6(CO_3)_2(OH)_{18} \cdot 3–5H_2O$, orth., violet-black, **44**, 908 (1959)

☐ **Wyllieite**, $(Na,Ca,Mn^{2+})(Mn^{2+},Fe^{2+})(Fe^{2+},Fe^{3+},Mg)Al(PO_4)_3$, mon., deep bluish-green to oily green, forms two series, with **Ferrowyllieite**, and with **Rosemaryite**, compare **Quingheiite**, **59**, 211, 280–290 (1974), **65**, 810–811 (1980)

X

☐ **Xanthiosite**, $Ni_3(AsO_4)_2$, mon., golden yellow, **50**, 2108 (1965)

☐ **Xanthoconite**, Ag_3AsS_3, mon., dimorph. with **Proustite**

Xanthophyllite = **Clintonite**, **52**, 1122–1128 (1967)

☐ **Xanthoxenite**, $Ca_4Fe_2^{3+}(PO_4)_4(OH)_2 \cdot 3H_2O$, tric., yellow, **34**, 692–705 (1949), **64**, 466 (1979)

☐ **Xenotime-(Y)**, YPO_4, tet., forms a series with **Chernovite-(Y)**, compare **Wakefieldite-(Y)**

☐ **Xiangjiangite**, $(Fe^{3+},Al)(UO_2)_4(PO_4)_2(SO_4)_2(OH) \cdot 22H_2O$, tet., yellow, **64**, 466 (1979)

☐ **Xifengite**, Fe_5Si_3, hex., **71**, 228 (1986)

☐ **Xilingolite**, $Pb_3Bi_2S_6$, mon., **69**, 409 (1984)

☐ **Ximengite**, $BiPO_4$, trig., *Min. Abst.* **41**, 472 (1990)

Xinganite-(Y) = **Hingganite-(Y)**

Xingsaoite = cobaltoan **Willemite**, $(Zn,Co^{2+})_2SiO_4$, trig., **76**, 669 (1991)

☐ **Xingzhongite**, $(Rh,Cu,Ru)_3S_4$, cub., **61**, 185 (1976), **69**, 412 (1984), **74**, 1220 (1989)

☐ **Xitieshanite**, $Fe^{3+}(SO_4)Cl \cdot 6H_2O$, mon., bright green, **69**, 1194 (1984), **74**, 1404 (1989)

☐ **Xocomecatlite**, $Cu_3^{2+}Te^{6+}O_4(OH)_4$, orth., emerald-green, **61**, 504 (1976)

☐ **Xonotlite**, $Ca_6Si_6O_{17}(OH)_2$, mon. and tric.

☐ **Yafsoanite**, $Ca_3Zn_3(Te^{6+}O_6)_2$, cub., brown, structurally related to the minerals of the *Garnet* group, **68**, 282–283 (1983), **75**, 937 (1990)

☐ **Yagiite**, $(Na,K)_{1.5}Mg_2(Al,Mg)_3(Si,Al)_{12}O_{30}$, hex., *Osumilite* group, **54**, 1418 (1969)

☐ **Yakhontovite**, $(Ca,Na)_{0.5}(Cu^{2+},Fe^{2+},Mg)_2Si_4O_{10}(OH)_2 \cdot 3H_2O$, mon., pistachio-green, *Smectite* group

☐ **Yanomamite**, $InAsO_4 \cdot 2H_2O$, orth., pale green to yellow green, forms a partial series with **Scorodite**, *Variscite* group, *Eur. J. Min.* **6**, 245–254 (1994)

☐ **Yaroslavite**, $Ca_3Al_2F_{10}(OH)_2 \cdot H_2O$, orth., **51**, 1546, 1820 (1966)

☐ **Yarrowite**, Cu_9S_8, hex., **66**, 1279 (1981)

☐ **Yavapaiite**, $KFe^{3+}(SO_4)_2$, mon., **44**, 1105–1114 (1959)

☐ **Yeatmanite**, $Mn_9^{2+}Zn_6Sb_2^{5+}Si_4O_{28}$, tric., **23**, 527–530 (1938), **65**, 196–199 (1980)

☐ **Yecoraite**, $Bi_5Fe_3^{3+}(Te^{4+}O_3)(Te^{6+}O_4)_2O_9 \cdot 9H_2O$, fibrous, orange to yellow

☐ **Yedlinite**, $Pb_6CrCl_6(O,OH)_8$, trig., red-violet, **59**, 1157–1165 (1974)

☐ **Ye'elimite**, $Ca_4Al_6O_{12}(SO_4)$, cub., **72**, 226–227 (1987)

☐ **Yftisite-(Y)**, $(Y,Dy,Er)_4(Ti,Sn^{4+})O(SiO_4)_2(F,OH)_6$, orth., **62**, 396 (1977)

☐ **Yimengite**, $K(Cr^{3+},Ti,Fe^{3+},Mg)_{12}O_{19}$, hex., black, *Magnetoplumbite* group, **70**, 218 (1985)

☐ **Yingjiangite**, $K_2Ca(UO_2)_7(PO_4)_4(OH)_6 \cdot 6H_2O$, orth., golden-yellow to yellow, **76**, 1731–1732 (1991)

Yixunite, PtIn (?), (perhaps = indian **Platinum** (?)), cub., **61**, 185–186 (1976), **65**, 408 (1980)

☐ **Yoderite**, $(Mg,Al,Fe^{3+})_8Si_4(O,OH)_{20}$, mon., **45**, 753 (1960), **76**, 1052–1060 (1991)

☐ **Yofortierite**, $(Mn^{2+},Mg)_5Si_8O_{20}(OH)_2 \cdot 8–9H_2O$, mon., pink to violet, compare **Palygorskite**, **Tuperssuatsiaite**, **61**, 341 (1976)

☐ **Yoshimuraite**, $(Ba,Sr)_2TiMn_2^{2+}(SiO_4)_2(PO_4,SO_4)(OH,Cl)$, tric., orange-brown, **45**, 479 (1960), **46**, 1515 (1961)

☐ **Yoshiokaite**, $Ca(Al,Si)_2O_4$, hex., compare **Nepheline**, **75**, 676–686 (1990)

☐ **Yttrialite-(Y)**, $(Y,Th)_2Si_2O_7$, hex. (?)

☐ **Yttrobetafite-(Y)**, $(Y,U,Ce)_2(Ti,Nb,Ta)_2O_6(OH)$, cub., *Pyrochlore* group, **49**, 440 (1964), **62**, 403–410 (1977)

Yttroceberyite = **Hingganite-(Y)**, **73**, 442 (1988)

Yttrocerite = cerian **Fluorite**

☐ **Yttrocolumbite-(Y)**, $(Y,U,Fe^{2+})(Nb,Ta)O_4$, orth. and mon., compare **Yttrotantalite-(Y)**

☐ **Yttrocrasite-(Y)**, $(Y,Th,Ca,U)(Ti,Fe^{3+})_2(O,OH)_6$, orth., compare **Euxenite-(Y)** and **Tanteuxenite-(Y)**

Yttro-orthite = **Allanite-(Y)**

☐ **Yttropyrochlore-(Y)**, $(Y,Na,Ca,U)_{1-2}(Nb,Ta,Ti)_2(O,OH)_7$, cub., *Pyrochlore* group, **62**, 407 (1977)

☐ **Yttrotantalite-(Y)**, $(Y,U,Fe^{2+})(Ta,Nb)O_4$, orth., dimorph. with **Formanite-(Y)**, compare **Yttrocolumbite-(Y)**

☐ **Yttrotungstite-(Y)**, $YW_2O_6(OH)_3$, mon., compare **Cerotungstite-(Ce)**, **36**, 641 (1951)

☐ **Yugawaralite**, $CaAl_2Si_6O_{16} \cdot 4H_2O$, mon., *Zeolite* group, **38**, 426 (1953), **54**, 306–309 (1969)

☐ **Yukonite**, $Ca_2Fe_3^{3+}(AsO_4)_4(OH) \cdot 12H_2O$ (?), amor.

☐ **Yuksporite**, $(K,Ba)NaCa_2(Si,Ti)_4O_{11}(F,OH) \cdot H_2O$, orth., pink, **62**, 1262 (1977)

☐ **Yushkinite**, $V_{1-x}S \cdot n(Mg,Al)(OH)_2$, hex., compare **Haapalaite**, **Tochilinite**, **Valleriite**, **71**, 846 (1986)

Z

☐ **Zabuyelite**, Li_2CO_3, mon., **75**, 243–244 (1990)

☐ **Zaherite**, $Al_{12}(SO_4)_5(OH)_{26}\cdot 20H_2O$, tric., **62**, 1125–1128 (1977), **71**, 231–232 (1986)

☐ **Zairite**, $Bi(Fe^{3+},Al)_3(PO_4)_2(OH)_6$, trig., greenish, *Crandallite* group, **62**, 174–175 (1977)

☐ **Zakharovite**, $Na_4Mn_5^{2+}Si_{10}O_{24}(OH)_6\cdot 6H_2O$, trig., **68**, 1040 (1983)

☐ **Zanazziite**, $Ca_2(Mg,Fe^{2+})(Mg,Fe^{2+},Al)_3Be_4(PO_4)_6(OH)_4\cdot 6H_2O$, mon., pale to dark olive-green, compare **Roscherite**, *Mineral. Rec.* **21**, 413–417 (1990)

☐ **Zapatalite**, $Cu_3^{2+}Al_4(PO_4)_3(OH)_9\cdot 4H_2O$, tet., pale blue, **57**, 1911–1912 (1972)

☐ **Zaratite**, $Ni_3(CO_3)(OH)_4\cdot 4H_2O$, cub., emerald-green

☐ **Zavaritskite**, BiOF, tet., compare **Bismoclite**, **Daubreeite**, **48**, 210 (1963)

☐ **Zektzerite**, $NaLiZrSi_6O_{15}$, orth., colorless to pink, compare **Tuhualite**, **62**, 416–420 (1977), **63**, 304–310 (1978)

☐ **Zellerite**, $Ca(UO_2)(CO_3)_2\cdot 5H_2O$, orth., lemon-yellow, **51**, 1567–1578 (1966)

☐ **Zemannite**, $(Zn,Fe^{2+})_2(Te^{4+}O_3)_3Na_xH_{2-x}\cdot nH_2O$, hex., compare **Kinichilite**, **55**, 1448 (1970)

☐ **Zemkorite**, $Na_2Ca(CO_3)_2$, hex., dimorph. with **Nyerereite**, **75**, 933–934 (1990)

☐ **Zenzenite**, $Pb_3(Fe^{3+},Mn^{3+})_4Mn_3^{4+}O_{15}$, hex., black, *Can. Min.* **29**, 347–354 (1991), **76**, 2024–2025 (1991)

Zeolites, see *Zeolite* group

☐ **Zeophyllite**, $Ca_4Si_3O_8(OH,F)_4\cdot 2H_2O$, tric., ps. hex.

☐ **Zeunerite**, $Cu^{2+}(UO_2)_2(AsO_4)_2\cdot 10\text{–}16H_2O$, tet., green, *Autunite* group

☐ **Zhanghengite**, CuZn, cub., golden, **75**, 244 (1990)

☐ **Zharchikhite**, $Al(F,OH)_3$, mon., **74**, 504 (1989)

☐ **Zhemchuzhnikovite**, $NaMg(Al,Fe^{3+})(C_2O_4)_3 \cdot 8H_2O$, (an oxalate), trig., **47**, 1483 (1962)

☐ **Zhonghuacerite-(Ce)**, $Ba_2Ce(CO_3)_3F$, trig., pale yellow, **67**, 1078 (1982)

☐ **Ziesite**, beta-$Cu_2^{2+}V_2^{5+}O_7$, mon., black, dimorph. with **Blossite**, **65**, 1146–1149 (1980)

☐ **Zimbabweite**, $(Na,K)_2PbAs_4^{3+}(Ta,Nb,Ti)_4O_{18}$, orth., yellow to yellow-brown, **73**, 1186–1190 (1988), **75**, 244 (1990)

☐ **Zinalsite**, $Zn_2AlSi_2O_5(OH)_4 \cdot 2H_2O$ (?), mon., (perhaps = **Fraipontite**) (?), **44**, 208 (1959)

☐ **Zinc**, Zn, hex.

☐ **Zincaluminite**, $Zn_6Al_6(SO_4)_2(OH)_{26} \cdot 5H_2O$, hex. (?)

Zinc blende = **Sphalerite**

☐ **Zincite**, $(Zn,Mn^{2+})O$, hex., red, compare **Bromellite**

Zinckenite = **Zinkenite**

☐ **Zinc-melanterite**, $(Zn,Cu^{2+},Fe^{2+})SO_4 \cdot 7H_2O$, mon., pale greenish-blue, *Melanterite* group

☐ **Zincobotryogen**, $(Zn,Mg,Mn^{2+})Fe^{3+}(SO_4)_2(OH) \cdot 7H_2O$, mon., orange-red, compare **Botryogen**, **49**, 1776 (1964)

☐ **Zincochromite**, $ZnCr_2^{3+}O_4$, cub., brownish-black, *Spinel* group, **73**, 931–932 (1988)

☐ **Zincocopiapite**, $ZnFe_4^{3+}(SO_4)_6(OH)_2 \cdot 18H_2O$, tric., yellow-green, *Copiapite* group, **49**, 1777 (1964)

☐ **Zincovoltaite**, $K_2Zn_5Fe_3^{3+}Al(SO_4)_{12} \cdot 18H_2O$, cub., greenish-black to green, compare **Voltaite**, **75**, 244–245 (1990)

☐ **Zincrosasite**, $(Zn,Cu^{2+})_2(CO_3)(OH)_2$, mon., *Rosasite* group, **44**, 1373 (1959)

☐ **Zincroselite**, $Ca_2Zn(AsO_4)_2 \cdot 2H_2O$, mon., dimorph. with **Gaitite**, *Roselite* group, **73**, 932 (1988)

☐ **Zincsilite**, $Zn_3Si_4O_{10}(OH)_2 \cdot 4H_2O$ (?), mon., **46**, 241 (1961)

☐ **Zinc-zippeite**, $Zn_2(UO_2)_6(SO_4)_3(OH)_{10} \cdot 16H_2O$, orth., yellow, compare **Cobalt-zippeite**, **Magnesium-zippeite**, **Nickel zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Zinkenite**, $Pb_9Sb_{22}S_{42}$, hex., **71**, 194–201 (1986)

☐ **Zinnwaldite**, $KLiFe^{2+}Al(AlSi_3)O_{10}(F,OH)_2$, mon., *Mica* group

☐ **Zippeite**, $K_3(UO_2)_6(SO_4)_3(OH)_{10} \cdot 4H_2O$, orth., yellow, compare **Sodium-zippeite**, *Can. Min.* **14**, 429–436 (1976)

☐ **Zircon**, $ZrSiO_4$, tet., compare **Hafnon**

☐ **Zirconolite**, $CaZrTi_2O_7$, orth., mon., trig. and metamict, polytypes ***-3O***, ***-3T***, ***-2M***, black to brown, **68**, 262 (1983)

Zirconolite = **Zirkelite**, **42**, 581 (1957), **62**, 407 (1977)

☐ **Zircophyllite**, $(K,Na,Ca)_3(Mn,Fe^{2+})_7(Zr,Nb)_2Si_8O_{27}(OH,F)_4$, tric., *Astrophyllite* group, **58**, 967 (1973)

☐ **Zircosulfate**, $(Zr,Ti)(SO_4)_2 \cdot 4H_2O$, orth., **51**, 529 (1966)

☐ **Zirkelite**, $(Ca,Th,Ce)Zr(Ti,Nb)_2O_7$, mon., ps. cub., dimorph. with **Calciobetafite**, related to the *Pyrochlore* group, compare **Polymignite**, **42**, 581 (1957), **62**, 407 (1977)

☐ **Zirklerite**, $(Fe^{2+},Mg)_9Al_4Cl_{18}(OH)_{12} \cdot 14H_2O$ (?), trig., **13**, 592 (1928)

Zirkophyllite = **Zircophyllite**

☐ **Zirsinalite**, $Na_6(Ca,Mn,Fe^{2+})ZrSi_6O_{18}$, trig., *Lovozerite* group, **60**, 489 (1975)

☐ **Znucalite**, $CaZn_{11}(UO_2)(CO_3)_3(OH)_{20} \cdot 4H_2O$, orth., yellow, **76**, 1732–1733 (1991)

☐ **Zodacite**, $Ca_4Mn^{2+}Fe_4^{3+}(PO_4)_6(OH)_4 \cdot 12H_2O$, mon., yellow, *Montgomeryite* group, **73**, 1179–1181 (1988)

☐ **Zoisite**, $Ca_2Al_3(SiO_4)_3(OH)$, orth., dimorph. with **Clinozoisite**, *Epidote* group

☐ **Zorite**, $Na_2Ti(Si,Al)_3O_9 \cdot nH_2O$ (?), orth., rose-colored, **58**, 1113–1114 (1973)

☐ **Zoubekite**, $AgPb_4Sb_4S_{10}$, orth., **72**, 227 (1987)

☐ **Zunyite**, $Al_{13}Si_5O_{20}(OH,F)_{18}Cl$, cub.

☐ **Zussmanite**, $K(Fe^{2+},Mg,Mn^{2+})_{13}(Si,Al)_{18}O_{42}(OH)_{14}$, trig., compare **Coombsite**, **50**, 278 (1965)

☐ **Zvyagintsevite**, $(Pd,Pt,Au)_3(Pb,Sn)$, cub., **52**, 299, 1587 (1967)

☐ **Zwieselite**, $(Fe^{2+},Mn^{2+})_2(PO_4)F$, mon., forms a series with **Triplite**, compare **Magniotriplite**

☐ **Zykaite**, $Fe_4^{3+}(AsO_4)_3(SO_4)(OH) \cdot 15H_2O$, orth., **63**, 1284 (1978)

Mineral Groups

Adelite Group

Orthorhombic arsenates and vanadates of general formula $AB^{2+}(XO_4)(OH)$, A = Ca, Pb; B^{2+} = Co, Cu, Fe, Mg, Ni, Zn; X = As^{5+}, V^{5+}.

Adelite	$CaMg(AsO_4)(OH)$
Austinite	$CaZn(AsO_4)(OH)$
Calciovolborthite	$CaCu(VO_4)(OH)$ (needs study)
Cobaltaustinite	$Ca(Co,Cu^{2+})(AsO_4)(OH)$
Conichalcite	$CaCu^{2+}(AsO_4)(OH)$
Duftite	$PbCu(AsO_4)(OH)$
Gabrielsonite	$PbFe^{2+}(AsO_4)(OH)$
Nickelaustinite	$Ca(Ni,Zn)(AsO_4)(OH)$
Tangeite	$CaCuVO_4(OH)$

Aenigmatite Group

Triclinic silicates with general formula $A_2B_6X_6O_{20}$, A = Ca, Na; B = Al, Cr^{3+}, Fe^{2+}, Fe^{3+}, Mg, Sb^{5+}, Ti; X = Al, B, Be, Si.

Aenigmatite	$Na_2Fe_5^{2+}TiSi_6O_{20}$
Dorrite	$Ca_2Mg_2Fe_4^{3+}Al_4Si_2O_{20}$
Høgtuvaite	$(Ca,Na)_2(Fe^{2+},Fe^{3+},Ti,Mg,Mn,Sn)_6(Si,Be,Al)_6O_{20}$
Krinovite	$Na_2Mg_4Cr_2Si_6O_{20}$
Makarochkinite	$(Ca,Na)_2(Fe^{2+},Fe^{3+},Ti,Mg)_6(Si,Al,Be)_6O_{20}$
Rhönite	$Ca_2(Fe^{2+},Fe^{3+},Mg,Ti)_6(Si,Al)_6O_{20}$
Serendibite	$Ca_2(Mg,Al)_6(Si,Al,B)_6O_{20}$
Welshite	$Ca_2Sb^{5+}Mg_4Fe^{3+}Si_4Be_2O_{20}$
Wilkinsonite	$Na_2Fe_4^{2+}Fe_2^{3+}Si_6O_{20}$

Alluaudite Group

Monoclinic phosphates and arsenates of general formula $NaACD_2(XO_4)_3$, A = Ca, Mg, Pb; C = Ca, Fe^{2+}, Mn^{2+}; D = Mn^{2+}, Fe^{2+}, Fe^{3+}, Mg; X = P, As.

Alluaudite	$NaCaFe^{2+}(Mn^{2+},Fe^{2+},Fe^{3+},Mg)_2(PO_4)_3$
Arseniopleite	$NaCaMn^{2+}(Mn^{2+},Mg)_2(AsO_4)_3$
Caryinite	$Na(Ca,Pb)(Ca,Mn)(Mn,Mg)_2(AsO_4)_3$
Ferro-alluaudite	$NaCaFe^{2+}(Fe^{2+},Mn^{2+},Fe^{3+})_2(PO_4)_3$
Hagendorfite	$NaCaMn^{2+}(Fe^{2+},Fe^{3+},Mg)_2(PO_4)_3$
Maghagendorfite	$NaMn^{2+}Mg(Fe^{2+},Fe^{3+})_2(PO_4)_3$
Varulite	$(Na,Ca)Mn^{2+}(Mn^{2+},Fe^{2+},Fe^{3+})_2(PO_4)_3$

Alunite Group

Trigonal sulfates of general formula $AB_6(SO_4)_4(OH)_{12}$, A = Ag_2^{1+}, Ca, $(H_3O)_2$, K_2, Na_2, $(NH_4)_2$, Tl^{1+}, Pb; B = Al, Cu^{2+}, Fe^{3+}.

Alunite	$K_2Al_6(SO_4)_4(OH)_{12}$
Ammonioalunite	$(NH_4)_2Al_6(SO_4)_4(OH)_{12}$
Ammoniojarosite	$(NH_4)_2Fe_6^{3+}(SO_4)_4(OH)_{12}$
Argentojarosite	$Ag_2^{1+}Fe_6^{3+}(SO_4)_4(OH)_{12}$
Beaverite	$Pb(Cu^{2+},Fe^{3+},Al)_6(SO_4)_4(OH)_{12}$
Dorallcharite	$(Tl,K)_2Fe_6^{3+}(SO_4)_4(OH)_{12}$
Huangite	$CaAl_6(SO_4)_4(OH)_{12}$
Hydronium jarosite	$(H_3O^{1+})_2Fe_6^{3+}(SO_4)_4(OH)_{12}$
Jarosite	$K_2Fe_6^{3+}(SO_4)_4(OH)_{12}$
Minamiite	$(Na,Ca,K)_2Al_6(SO_4)_4(OH)_{12}$
Natroalunite	$Na_2Al_6(SO_4)_4(OH)_{12}$
Natrojarosite	$Na_2Fe_6^{3+}(SO_4)_4(OH)_{12}$
Osarizawaite	$Pb_2Cu_2^{2+}Al_4(SO_4)_4(OH)_{12}$
Plumbojarosite	$PbFe_6^{3+}(SO_4)_4(OH)_{12}$
Walthierite	$BaAl_6(SO_4)_4(OH)_{12}$

Amblygonite Group

Triclinic phosphates of general formula $AB(PO_4)X$, A = Li, Na; B = Al, Fe^{3+}; X = (OH), F.

Amblygonite	$(Li,Na)Al(PO_4)(F,OH)$
Montebrasite	$LiAl(PO_4)(OH,F)$
Natromontebrasite	$(Na,Li)Al(PO_4)(OH,F)$
Tavorite	$LiFe^{3+}(PO_4)(OH)$

Amphibole Group

An extremely complex group of silicates, orth. or mon., with general formula $A_{0-1}B_2Y_5Z_8O_{22}(OH,F,Cl)_2$; A = Ca, Na, K, Pb; B = Ca, Fe^{2+}, Li, Mg, Mn^{2+}, Na; Y = Al, Cr^{3+}, Fe^{2+}, Fe^{3+}, Mg, Mn^{2+}, Ti; Z = Al, Be, Si, Ti. A detailed discussion of the nomenclature of the group is in **63**, 1023–1052 (1978).

Actinolite	$Ca_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$
Aluminokatophorite	$Na_2Ca(Fe^{2+},Mg)_4AlSi_7AlO_{22}(OH)_2$
Anthophyllite	$(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$
Arfvedsonite	$Na_3(Fe^{2+},Mg)_4Fe^{3+}Si_8O_{22}(OH)_2$
Barroisite	$NaCa(Mg,Fe^{2+})_3Al_2(Si_7Al)O_{22}(OH)_2$
Clinoholmquistite	$Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$
Crossite	$Na_2(Mg,Fe^{2+})_3(Al,Fe^{3+})_2Si_8O_{22}(OH)_2$
Cummingtonite	$(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$
Dannemorite	$Mn_2(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$
Eckermannite	$Na_3(Mg,Fe^{2+})_4AlSi_8O_{22}(OH)_2$

Edenite	$NaCa_2(Mg,Fe^{2+})_5Si_7AlO_{22}(OH)_2$
Ferrikatophorite	$Na_2Ca(Fe^{2+},Mg)_4Fe^{3+}Si_7AlO_{22}(OH)_2$
Ferri-winchite	$CaNaMg_4Fe^{3+}Si_8O_{22}(OH)_2$
Ferro-actinolite	$Ca_2(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$
Ferro-anthophyllite	$(Fe^{2+},Mg)_7Si_8O_{22}(OH)_2$
Ferrobarroisite	$NaCa(Fe^{2+},Mg)_3Al_2(Si_7Al)O_{22}(OH)_2$
Ferroclinoholmquistite	$Li_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$
Ferro-eckermannite	$Na_3(Fe^{2+},Mg)_4AlSi_8O_{22}(OH)_2$
Ferro-edenite	$NaCa_2(Fe^{2+},Mg)_5(Si_7Al)O_{22}(OH)_2$
Ferro-ferri-tschermakite	$Ca_2(Fe^{2+},Mg)_3Fe_2^{3+}(Si_6Al_2)O_{22}(OH)_2$
Ferrogedrite	$(Fe^{2+},Mg)_5Al_2(Si_6Al_2)O_{22}(OH)_2$
Ferroglaucophane	$Na_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$
Ferroholmquistite	$Li_2(Fe^{2+},Mg)_3Al_2Si_8O_{22}(OH)_2$
Ferrohornblende	$Ca_2(Fe^{2+},Mg)_4Al(Si_7Al)O_{22}(OH,F)_2$
Ferrokaersutite	$NaCa_2(Fe^{2+},Mg)_4Ti(Si_6Al_2)O_{22}(OH)_2$
Ferropargasite	$NaCa_2(Fe^{2+},Mg)_4Al(Si_6Al_2)O_{22}(OH)_2$
Ferrorichterite	$Na_2Ca(Fe^{2+},Mg)_5Si_8O_{22}(OH)_2$
Ferrotschermakite	$Ca_2(Fe^{2+},Mg)_3Al_2(Si_6Al_2)O_{22}(OH)_2$
Ferrowinchite	$NaCa(Fe^{2+},Mg)_4AlSi_8O_{22}(OH)_2$
Fluorrichterite	$Na_2Ca(Mg,Fe^{2+})_5Si_8O_{22}(F,OH)_2$
Gedrite	$(Mg,Fe^{2+})_5Al_2(Si_6Al_2)O_{22}(OH)_2$
Glaucophane	$Na_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$
Grunerite	$(Fe^{2+},Mg)_7Si_8O_{22}(OH)_2$
Hastingsite	$NaCa_2(Fe^{2+},Mg)_4Fe^{3+}(Si_6Al_2)O_{22}(OH)_2$
Holmquistite	$Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$
Joesmithite	$PbCa_2(Mg,Fe^{2+},Fe^{3+})_5Si_6Be_2O_{22}(OH)_2$
Kaersutite	$NaCa_2(Mg,Fe^{2+})_4Ti(Si_6Al_2)O_{22}(OH)_2$
Kornite	$(K,Na)(Na,Li)_2(Mg,Mn^{3+},Li,Fe^{3+})_5Si_8O_{22}(OH)_2$
Kozulite	$Na_3Mn_4^{2+}(Fe^{3+},Al)Si_8O_{22}(OH,F)_2$
Leakeite	$NaNa_2(Mg_2Fe_2^{2+}Li)Si_8O_{22}(F,OH)_2$
Magnesio-aluminokatophorite	$Na_2Ca(Mg,Fe^{2+})_4Al(Si_7Al)O_{22}(OH)_2$
Magnesio-anthophyllite	$(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$
Magnesio-arfvedsonite	$Na_3(Mg,Fe^{2+})_4Fe^{3+}Si_8O_{22}(OH)_2$
Magnesioclino-holmquistite	$Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$
Magnesiocummingtonite	$(Mg,Fe^{2+})_7Si_8O_{22}(OH)_2$
Magnesio-ferrikatophorite	$Na_2Ca(Mg,Fe^{2+})_4Fe^{3+}(Si_7Al)O_{22}(OH)_2$
Magnesiogedrite	$(Mg,Fe^{2+})_5Al_2(Si_6Al_2)O_{22}(OH)_2$
Magnesiohastingsite	$NaCa_2(Mg,Fe^{2+})_4Fe^{3+}Si_6Al_2O_{22}(OH)_2$
Magnesioholmquistite	$Li_2(Mg,Fe^{2+})_3Al_2Si_8O_{22}(OH)_2$
Magnesiohornblende	$Ca_2(Mg,Fe^{2+})_4Al(Si_7Al)O_{22}(OH,F)_2$
Magnesioriebeckite	$Na_2(Mg,Fe^{2+})_3Fe_2^{3+}Si_8O_{22}(OH)_2$

Magnesiosadanagaite	$(K,Na)Ca_2(Mg,Fe^{2+},Al,Fe^{3+},Ti)_5(Si,Al)_8O_{22}(OH)_2$
Magnesiotaramite	$Na_2Ca(Mg,Fe^{2+})_3Al_2(Si_6Al_2)O_{22}(OH)_2$
Nyboite	$NaNa_2Mg_3Al_2(Si_7Al)O_{22}(OH)_2$
Pargasite	$NaCa_2(Mg,Fe^{2+})_4Al(Si_6Al_2)O_{22}(OH)_2$
Potassium-fluor-richterite	$(K,Na)(Ca,Na)_2Mg_5Si_8O_{22}(F,OH)_2$
Richterite	$Na_2Ca(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$
Riebeckite	$Na_2(Fe^{2+},Mg)_3Fe_2^{3+}Si_8O_{22}(OH)_2$
Sadanagaite	$(K,Na)Ca_2(Fe^{2+},Mg,Al,Fe^{3+},Ti)_5(Si,Al)_8O_{22}(OH)_2$
Sodium anthophyllite	$Na(Mg,Fe^{2+})_7(Si_7Al)O_{22}(OH)_2$
Sodium gedrite	$Na(Mg,Fe^{2+})_6Al(Si_6Al_2)O_{22}(OH)_2$
Taramite	$Na_2Ca(Fe^{2+},Mg)_3Al_2(Si_6Al_2)O_{22}(OH)_2$
Tirodite	$Mn_2^{2+}(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$
Tremolite	$Ca_2(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$
Tschermakite	$Ca_2(Mg,Fe^{2+})_3Al_2(Si_6Al_2)O_{22}(OH)_2$
Winchite	$NaCa(Mg,Fe^{2+})_4AlSi_8O_{22}(OH)_2$

Apatite Group

Hexagonal, or monoclinic, pseudohexagonal arsenates, phosphates, and vanadates of general formula $A_5(XO_4)_3(F,CL,CH)$; A = Ba, Ca, Ce, K, Na, Pb, Sr, Y; X = As^{5+}, P^{5+}, Si^{4+}, V^{5+}; (CO_3) may partially replace (PO_4).

Alforsite	$Ba_5(PO_4)_3Cl$
Belovite	$(Sr,Ce,Na,Ca)_5(PO_4)_3(OH)$
Carbonate-fluorapatite	$Ca_5(PO_4,CO_3)_3F$
Carbonate-hydroxylapatite	$Ca_5(PO_4,CO_3)_3(OH)$
Chlorapatite	$Ca_5(PO_4)_3Cl$
Clinomimetite	$Pb_5(AsO_4)_3Cl$
Fermorite	$(Ca,Sr)_5(AsO_4,PO_4)_3(OH)$
Fluorapatite	$Ca_5(PO_4)_3F$
Hedyphane	$Pb_3Ca_2(AsO_4)_3Cl$
Hydroxylapatite	$Ca_5(PO_4)_3(OH)$
Johnbaumite	$Ca_5(AsO_4)_3(OH)$
Mimetite	$Pb_5(AsO_4)_3Cl$
Morelandite	$(Ba,Ca,Pb)_5(AsO_4,PO_4)_3Cl$
Pyromorphite	$Pb_5(PO_4)_3Cl$
Strontium-apatite	$(Sr,Ca)_5(PO_4)_3(OH,F)$
Svabite	$Ca_5(AsO_4)_3F$
Turneaureite	$Ca_5[(As,P)O_4]_3Cl$
Vanadinite	$Pb_5(VO_4)Cl$

Britholite-(Ce), Britholite-(Y), Chlorellestadite, Fluorellestadite, Hydroxylellestadite, and Mattheddleite are silicates that are isostructural with members of the Apatite group; so is the sulfate Cesanite.

Aragonite Group

Orthorhombic carbonates of general formula ACO_3, A = Ba, Ca, Pb, Sr; compare the Calcite group.

Aragonite	$CaCO_3$
Cerussite	$PbCO_3$
Strontianite	$SrCO_3$
Witherite	$BaCO_3$

Arsenic Group

Trigonal semi-metals (As, Bi, Sb).

Antimony	Sb
Arsenic	As
Bismuth	Bi
Stibarsen	SbAs

Arsenopyrite Group

Sulfides of general formula ABS, mon. or orth., A = Co, Fe, Os, Ru; B = As, Sb.

Arsenopyrite	FeAsS
Glaucodot	(Co,Fe)AsS
Gudmundite	FeSbS
Osarsite	(Os,Ru)AsS
Ruarsite	RuAsS

Arthurite Group

Monoclinic arsenates and phosphates of general formula $A^{2+}Fe^{3+}_2(XO_4)_2(O,OH)_2 \cdot 4H_2O$; A^{2+}; A^{2+} = Cu, Fe, Mn, Zn; X = As, P, S.

Arthurite	$Cu^{2+}Fe^{3+}_2(AsO_4,PO_4,SO_4)_2(O,OH)_2 \cdot 4H_2O$
Earlshannonite	$(Mn^{2+},Fe^{2+})Fe^{3+}_2(PO_4)_2(OH)_2 \cdot 4H_2O$
Ojuelaite	$ZnFe^{3+}_2(AsO_4)_2(OH)_2 \cdot 4H_2O$
Whitmoreite	$Fe^{2+}Fe^{3+}_2(PO_4)_2(OH)_2 \cdot 4H_2O$

Astrophyllite Group

Triclinic silicates of general formula $A_3B_7C_2Si_8O_{24}(O,OH)_7$, A = Ca, Cs, (H_3O), K, Na; B = Fe^{2+}, Mg, Mn^{2+}; C = Nb, Ti, Zr.

Astrophyllite	$(K,Na)_3(Fe^{2+},Mn)_7Ti_2Si_8O_{24}(O,OH)_7$
Cesium-kupletskite	$(Cs,K,Na)_3(Mn,Fe^{2+})_7(Ti,Nb)_2Si_8O_{24}(O,OH,F)_7$
Hydroastrophyllite	$(H_3O,K,Ca)_3(Fe^{2+},Mn)_{5-6}Ti_2Si_8(O,OH)_{31}$
Kupletskite	$(K,Na)_3(Mn,Fe^{2+})_7(Ti,Nb)_2Si_8O_{24}(O,OH)_7$
Magnesium astrophyllite	$(Na,K)_4Mg_2(Fe^{2+},Fe^{3+},Mn)_5Ti_2Si_8O_{24}(O,OH,F)_7$
Niobophyllite	$(K,Na)_3(Fe^{2+},Mn^{2+})_6(Nb,Ti)_2Si_8(O,OH,F)_{31}$
Zircophyllite	$(K,Na,Ca)_3(Mn,Fe^{2+})_7(Zr,Nb)_2Si_8O_{27}(OH,F)_4$

Autunite Group

Tetragonal uranyl arsenate, phosphates, and vanadates of general formula $A(UO_2)_2(XO_4)_2 \cdot 8–12H_2O$; A = Ba, Ca, Cu, Fe^{2+}, 1/2(HAl), Mg, Mn^{2+}, $Na_3(UO_2)$; X = As, P, V.

Autunite	$Ca(UO_2)_2(PO_4)_2 \cdot 10–12H_2O$
Fritzscheite	$Mn^{2+}(UO_2)_2[(P,V)O_4]_2 \cdot 10H_2O$ (?)
Heinrichite	$Ba(UO_2)_2(AsO_4)_2 \cdot 10–12H_2O$
Kahlerite	$Fe^{2+}(UO_2)_2(AsO_4)_2 \cdot 10–12H_2O$
Novacekite	$Mg(UO_2)_2(AsO_4)_2 \cdot 12H_2O$
Sabugalite	$H_{0.5}Al_{0.5}(UO_2)_2(PO_4)_2 \cdot 8H_2O$
Saleeite	$Mg(UO_2)_2(PO_4)_2 \cdot 10H_2O$
Sodium autunite	$Na_2(UO_2)_2(PO_4)_2 \cdot 8H_2O$
Torbernite	$Cu^{2+}(UO_2)_2(PO_4)_2 \cdot 8–12H_2O$
Trögerite	$(UO_2)_3(AsO_4)_2 \cdot 12H_2O$ (?)
Uranocircite	$Ba(UO_2)_2(PO_4)_2 \cdot 12H_2O$
Uranospinite	$Ca(UO_2)_2(AsO_4)_2 \cdot 10H_2O$
Zeunerite	$Cu^{2+}(UO_2)_2(AsO_4)_2 \cdot 10–16H_2O$

Axinite Group

Triclinic borosilicates of general formula $A_3Al_2BSi_4O_{15}(OH)$, A = Ca, Fe^{2+}, Mg, Mn^{2+}.

Ferro-axinite	$Ca_2Fe^{2+}Al_2BSi_4O_{15}(OH)$
Magnesio-axinite	$Ca_2MgAl_2BSi_4O_{15}(OH)$
Manganaxinite	$Ca_2Mn^{2+}Al_2BSi_4O_{15}(OH)$
Tinzenite	$(Ca,Mn^{2+},Fe^{2+})_3Al_2BSi_4O_{15}(OH)$

Barite Group

Orthorhombic sulfates and chromate of general formula AXO_4, A = Ba, Pb, Sr; X = Cr^{6+} S^{6+}.

Anglesite	$PbSO_4$
Barite	$BaSO_4$
Celestine	$SrSO_4$
Hashemite	$Ba(Cr,S)O_4$

Beudantite Group

Trigonal sulfate-arsenates and sulfate-phosphates of general formula $AB_3(XO_4)(SO_4)(OH)_6$, A = Ba, Ca, Ce, Pb, Sr, (H_3); B = Al, Fe^{3+}; X = As^{5+} P^{5+}.

Beudantite	$PbFe_3^{3+}(AsO_4)(SO_4)(OH)_6$
Corkite	$PbFe_3^{3+}(PO_4)(SO_4)(OH)_6$
Hidalgoite	$PbAl_3(AsO_4)(SO_4)(OH)_6$
Hinsdalite	$(Pb,Sr)Al_3(PO_4)(SO_4)(OH)_6$

Kemmlitzite	$(Sr,Ce)Al_3(AsO_4)(SO_4)(OH)_6$
Schlossmacherite	$(H_3O,Ca)Al_3(AsO_4,SO_4)_2(OH)_6$
Svanbergite	$SrAl_3(PO_4)(SO_4)(OH)_6$
Weilerite	$BaAl_3H[(As,P)O_4]_2(OH)_6$ (?)
Woodhouseite	$CaAl_3(PO_4)(SO_4)(OH)_6$

Bjarebyite Group

Monoclinic and triclinic phosphates of general formula $AB_2C_2(PO_4)_3(OH)_3$, A = Ba, Sr; B = Fe^{2+}, Mg, Mn^{2+}; C = Al, Fe^{3+}.

Bjarebyite	$(Ba,Sr)(Mn^{2+},Fe^{2+},Mg)_2Al_2(PO_4)_3(OH)_3$
Kulanite	$Ba(Fe^{2+},Mn,Mg)_2Al_2(PO_4)_3(OH)_3$
Penikisite	$Ba(Mg,Fe^{2+})_2Al_2(PO_4)_3(OH)_3$
Perloffite	$Ba(Mn^{2+},Fe^{2+})_2Fe^{3+}_2(PO_4)_3(OH)_3$

Brackebuschite Group

Monoclinic arsenates, phosphates, and vanadates of general formula $A_2B(XO_4)_2(OH,H_2O)$, A = Ba, Ca, Pb, Sr; B = Al, Cu^{2+}, Fe^{2+}, Fe^{3+}, Mn^{2+}, Mn^{3+}, Zn; XO_4 = AsO_4, PO_4, SO_4, VO_4.

Arsenbrackebuschite	$Pb_2(Fe^{2+},Zn)(AsO_4)_2\cdot H_2O$
Arsentsumebite	$Pb_2Cu^{2+}(AsO_4)(SO_4)(OH)$
Bearthite	$Ca_2Al(PO_4)_2(OH)$
Brackebuschite	$Pb_2(Mn^{2+},Fe^{2+})(VO_4)_2\cdot H_2O$
Gamagarite	$Ba_2(Fe^{3+},Mn^{3+})(VO_4)_2(OH)$
Goedkenite	$(Sr,Ca)_2Al(PO_4)_2(OH)$
Tsumebite	$Pb_2Cu(PO_4)(SO_4)(OH)$

Brucite Group

Trigonal hydroxides of general formula $M^{2+}(OH)_2$, M^{2+} = Fe, Mg, Mn, Ni.

Amakinite	$(Fe^{2+},Mg)(OH)_2$
Brucite	$Mg(OH)_2$
Pyrochroite	$Mn^{2+}(OH)_2$
Theophrastite	$Ni(OH)_2$

Calcite Group

Trigonal carbonates of general formula $A^{2+}(CO_3)$, A^{2+} = Ca, Cd, Co, Fe, Mg, Mn, Ni, Zn; compare the Aragonite group.

Calcite	$CaCO_3$
Gaspeite	$(Ni,Mg,Fe^{2+})CO_3$
Magnesite	$MgCO_3$
Otavite	$CdCO_3$
Rhodochrosite	$Mn^{2+}CO_3$
Siderite	$Fe^{2+}CO_3$

Smithsonite	$ZnCO_3$
Sphaerocobaltite	$CoCO_3$

Cancrinite Group

Hexagonal silicates of general formula $A_{6-9}(Si,Al)_{12}O_{24}[(SO_4),(CO_3),Cl_2,(OH)]_{2-4}\cdot nH_2O$. A = Na, Ca, K.

Afghanite	$(Na,Ca,K)_8(Si,Al)_{12}O_{24}(SO_4,Cl,CO_3)_3\cdot H_2O$
Bystrite	$Ca(Na,K)_4Si_6Al_6O_{34}(S^{2-})_{1.5}\cdot H_2O$
Cancrinite	$Na_6Ca_2Al_6Si_6O_{24}(CO_3)_2$
Cancrisilite	$Na_7Al_5Si_7O_{24}(CO_3)\cdot 3H_2O$
Davyne	$(Na,Ca,K)_8Al_6Si_6O_{24}(Cl,SO_4,CO_3)_{2-3}$
Franzinite	$(Na,Ca)_7(Si,Al)_{12}O_{24}(SO_4,CO_3,OH,Cl)_3\cdot H_2O$
Giuseppettite	$(Na,K,Ca)_{7-8}(Si,Al)_{12}O_{24}(SO_4Cl)_{1-2}$
Hydroxycancrinite	$Na_8Al_6Si_6O_{24}(OH)_2\cdot 2H_2O$
Liottite	$(Ca,Na,K)_8(Si,Al)_{12}O_{24}[(SO_4),(CO_3),Cl,OH]_4\cdot H_2O$
Microsommite	$(Na,Ca,K)_{7-8}(Si,Al)_{12}O_{24}(Cl,SO_4,CO_3)_{2-3}$
Pitaglianoite	$K_2Na_6Si_6Al_6O_{24}(SO_4)\cdot 2H_2O$
Quadridavyne	$[(Na,K)_6Cl_2](Ca_2Cl_2)(Si_6Al_6O_{24})$
Sacrofanite	$(Na,Ca,K)_9(Si,Al)_{12}O_{24}$-$[(OH)_2,(SO_4),(CO_3),Cl_2]_3\cdot nH_2O$
Tounkite	$(Na,Ca,K)_8(Al_6Si_6O_{24})(SO_4)_2Cl\cdot H_2O$
Vishnevite	$(Na,Ca,K)_6(Si,Al)_{12}O_{24}[(SO_4),(CO_3),Cl_2]_{2-4}\cdot nH_2O$
Wenkite (?)	$Ba_4Ca_6(Si,Al)_{20}O_{39}(OH)_2(SO_4)_3\cdot nH_2O$ (?)

Chalcanthite Group

Triclinic sulfates of general formula $A^{2+}(SO_4)\cdot 5H_2O$, A^{2+} = Cu, Fe, Mg, Mn.

Chalcanthite	$Cu^{2+}SO_4\cdot 5H_2O$
Jokokuite	$Mn^{2+}SO_4\cdot 5H_2O$
Pentahydrite	$MgSO_4\cdot 5H_2O$
Siderotil	$Fe^{2+}SO_4\cdot 5H_2O$

Chalcopyrite Group

Tetragonal sulfides of general formula $CuBX_2$, B = Fe, Ga, In; X = S, Se.

Chalcopyrite	$CuFeS_2$
Eskebornite	$CuFeSe_2$
Gallite	$CuGaS_2$
Roquesite	$CuInS_2$

Chlorite Group

Monoclinic or triclinic silicates of general formula $A_{4-6}Z_4O_{10}(OH,O)_8$, A = Al, Fe^{2+}, Fe^{2+}, Li, Mg, Mn^{2+}, Ni, Zn; Z = Al, B, Fe^{3+}, Si. Their nomenclature is discussed by Hey, *Min. Mag.* **30**, 277–292 (1954) and by Bayliss, *Can. Min.* **13**, 178–180 (1975).

Alushtite	a dioctahedral chlorite
Baileychlore	$(Zn,Fe^{2+},Al,Mg)_6(Si,Al)_4O_{10}(OH)_8$
Chamosite	$(Fe^{2+},Mg,Fe^{3+})_5Al(Si_3Al)O_{10}(OH,O)_8$
Clinochlore	$(Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$
Cookeite	$LiAl_4(Si_3Al)O_{10}(OH)_8$
Gonyerite	$(Mn^{2+},Mg)_5Fe^{3+}(Si_3Fe^{3+})O_{10}(OH)_8$
Nimite	$(Ni,Mg,Fe^{2+})_5Al(Si_3Al)O_{10}(OH)_8$
Orthochamosite	$(Fe^{2+},Mg,Fe^{3+})_5Al(Si_3Al)O_{10}(OH,O)_8$
Pennantite	$Mn_5^{2+}Al(Si_3Al)O_{10}(OH)_8$
Sudoite	$Mg_2(Al,Fe^{3+})_3Si_3AlO_{10}(OH)_8$

Compare Franklinfurnaceite.

Cobaltite Group

Sulfides, cubic or pseudo-cubic, of general formula ABS, A = Co, In, Ir, Ni, Pd, Pt, Rh, Ru; B = As, Sb, Bi.

Cobaltite	CoAsS
Gersdorffite	NiAsS
Hollingworthite	(Rh,Pt,Pd)AsS
Irarsite	(Ir,Ru,Rh,Pt)AsS
Jolliffeite	NiAsSe
Padmaite	PdBiSe
Platarsite	(Pt,Rh,Ru)AsS
Tolovkite	IrSbS
Ullmannite	NiSbS
Willyamite	(Co,Ni)SbS

Colusite Group

Cubic sulfides with general formula $Cu_{26}A_2B_6S_{32}$ or $Cu_{26}A_4B_4S_{32}$ where A = V, Fe and B = As, Sn, Sb, Ge.

Colusite	$Cu_{26}V_2(As,Sn,Sb)_6S_{32}$
Germanite	$Cu_{26}Fe_4Ge_4S_{32}$
Germanocolusite	$Cu_{26}V_2(Ge,As)_6S_{32}$
Nekrasovite	$Cu_{26}V_2(Sn,As,Sb)_6S_{32}$
Stibiocolusite	$Cu_{26}V_2(Sb,Sn,As)_6S_{32}$

Copiapite Group

Triclinic sulfates of formula either $A^{2+}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 18–20H_2O$, or $B^{3+}_{2/3}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$; A^{2+} = Ca, Cu, Fe, Mg, Zn; B^{3+} = Al, Fe.

Aluminocopiapite	$Al_{2/3}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$
Calciocopiapite	$CaFe^{3+}_4(SO_4)_6(OH)_2 \cdot 19H_2O$
Copiapite	$Fe^{2+}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$
Cuprocopiapite	$Cu^{2+}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$
Ferricopiapite	$Fe^{3+}_{2/3}Fe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$
Magnesiocopiapite	$MgFe^{3+}_4(SO_4)_6(OH)_2 \cdot 20H_2O$
Zincocopiapite	$ZnFe^{3+}_4(SO_4)_6(OH)_2 \cdot 18H_2O$

Crandallite Group

Trigonal phosphates and arsenates of general formula $AB_3(XO_4)_2(OH,F)_5$, or $AB_3(XO_4)_2(OH,F)_6$; A = Ba, Bi, Ca, Ce, La, Nd, Pb, Sr, Th; B = Al, Fe^{3+}; X = As, P, Si.

Arsenocrandallite	$(Ca,Sr)Al_3[(As,P)O_4]_2(OH)_5 \cdot H_2O$
Arsenoflorencite-(Ce)	$(Ce,La)Al_3(AsO_4,PO_4)_2(OH)_6$
Arsenoflorencite-(La)	$LaAl_3(AsO_4)_2(OH)_6$
Arsenoflorencite-(Nd)	$NdAl_3(AsO_4)_2(OH)_6$
Arsenogorceixite	$BaAl_3(AsO_4)(AsO_3OH)(OH)_6$
Arsenogoyazite	$(Sr,Ca,Ba)Al_3(AsO_4,PO_4)_2(OH,F)_5 \cdot H_2O$
Crandallite	$CaAl_3(PO_4)_2(OH)_5 \cdot H_2O$
Dussertite	$BaFe^{3+}_3(AsO_4)_2(OH)_5$
Eylettersite	$(Th,Pb)_{1-x}Al_3(PO_4,SiO_4)_2(OH)_6$ (?)
Florencite-(Ce)	$CeAl_3(PO_4)_2(OH)_6$
Florencite-(La)	$(La,Ce)Al_3(PO_4)_2(OH)_6$
Florencite-(Nd)	$(Nd,Ce)Al_3(PO_4)_2(OH)_6$
Gorceixite	$BaAl_3(PO_4)(PO_3OH)(OH)_6$
Goyazite	$SrAl_3(PO_4)_2(OH)_5 \cdot H_2O$
Lusungite	$(Sr,Pb)Fe^{3+}_3(PO_4)_2(OH)_5 \cdot H_2O$
Philipsbornite	$PbAl_3(AsO_4)_2(OH)_5 \cdot H_2O$
Plumbogummite	$PbAl_3(PO_4)_2(OH)_5 \cdot H_2O$
Waylandite	$(Bi,Ca)Al_3(PO_4,SiO_4)_2(OH)_6$
Zairite	$Bi(Fe^{3+},Al)_3(PO_4)_2(OH)_6$

Crichtonite Group

Trigonal, or monoclinic, pseudotrigonal oxides of general formula $AB_{21}(O,OH)_{38}$; A = Ba, Ca, Ce, K, La, Na, Pb, Sr, Y; B = Cr^{3+}, Fe^{2+}, Fe^{3+}, Mg, Mn^{2+}, Ti, U, V^{3+}, Zn, Zr.

Crichtonite	$(Sr,La,Ce,Y)(Ti,Fe^{3+},Mn)_{21}O_{38}$
Davidite-(Ce)	$(Ce,La)(Y,U,Fe^{2+})(Ti,Fe^{3+})_{20}(O,OH)_{38}$
Davidite-(La)	$(La,Ce)(Y,U,Fe^{2+})(Ti,Fe^{3+})_{20}(O,OH)_{38}$

Landauite	$NaMn^{2+}Zn_2(Ti,Fe^{3+})_6Ti_{12}O_{38}$
Lindsleyite	$(Ba,Sr)(Ti,Cr,Fe,Mg,Zr)_{21}O_{38}$
Loveringite	$(Ca,Ce)(Ti,Fe^{3+},Cr,Mg)_{21}O_{38}$
Mathiasite	$(K,Ca,Sr)(Ti,Cr,Fe,Mg)_{21}O_{38}$
Senaite	$Pb(Ti,Fe,Mn)_{21}O_{38}$

Romanite is a related mineral.

Cryptomelane Group

Complex oxides, tetragonal or monoclinic, pseudo-tetragonal, of general formula AB_8O_{16}, A = Ba, K, Mn^{4+}, Na, Pb, Sr; B = Cr^{3+}, Fe^{3+}, Mg, Mn^{2+}, Ti, V^{3+}, Zn, Zr.

Ankangite	$Ba(Ti,V^{3+},Cr^{3+})_8O_{16}$
Coronadite	$Pb(Mn^{4+},Mn^{2+})_8O_{16}$
Cryptomelane	$K(Mn^{4+},Mn^{2+})_8O_{16}$
Hollandite	$Ba(Mn^{4+},Mn^{2+})_8O_{16}$
Manjiroite	$(Na,K)(Mn^{4+},Mn^{2+})_8O_{16}\cdot nH_2O$
Mannardite	$Ba(Ti_6V_2^{3+})O_{16}$
Priderite	$(K,Ba)(Ti,Fe^{3+})_8O_{16}$
Redledgeite	$BaTi_6Cr_2^{3+}O_{16}\cdot H_2O$

Datolite Group

See Gadolinite group.

Descloizite Group

Orthorhombic arsenates and vanadates of general formula $PbM(XO_4)(OH)$, M = Cu^{2+} Fe^{2+} Mn^{2+} Zn; X = As^{5+} V^{5+}

Arsendescloizite	$PbZn(AsO_4)(OH)$
Cechite	$Pb(Fe^{2+},Mn)(VO_4)(OH)$
Descloizite	$PbZn(VO_4)(OH)$
Mottramite	$PbCu^{2+}(VO_4)(OH)$
Pyrobelonite	$PbMn^{2+}(VO_4)(OH)$

Dolomite Group

Trigonal carbonates of general formula $AB(CO_3)_2$, A = Ba, Ca; B = Fe^{2+}, Mg Mn^{2+} Zn.

Ankerite	$Ca(Fe^{2+},Mg,Mn)(CO_3)_2$
Dolomite	$CaMg(CO_3)_2$
Kutnohorite	$Ca(Mn^{2+},Mg,Fe^{2+})(CO_3)_2$
Minrecordite	$CaZn(CO_3)_2$
Norsethite	$BaMg(CO_3)_2$

Isostructural with the borates Nordenskiöldine and Tusionite.

Epidote Group

Monoclinic and orthorhombic silicates of general formula $A_2B_3(SiO_4)_3(OH)$, or $A_2B_3Si_3O_{11}(OH,F)_2$, A = Ca, Ce, Pb, Sr, Y; B = Al, Fe^{3+}, Mg, Mn^{3+}, V^{3+}.

Allanite-(Ce)	$(Ce,Ca,Y)_2(Al,Fe^{2+},Fe^{3+})_3(SiO_4)_3(OH)$
Allanite-(La)	$(La,Ce,Ca)_2(Al,Fe^{2+},Fe^{3+})_3(SiO_4)_3(OH)$
Allanite-(Y)	$(Y,Ce,Ca)_2(Al,Fe^{3+})_3(SiO_4)_3(OH)$
Clinozoisite	$Ca_2Al_3(SiO_4)_3(OH)$
Dissakisite-(Ce)	$Ca(Ce,La)MgAl_2(SiO_4)_3(OH)$
Dollaseite-(Ce)	$CaCeMg_2AlSi_3O_{11}(F,OH)_2$
Epidote	$Ca_2(Fe^{3+},Al)_3(SiO_4)_3(OH)$
Hancockite	$(Pb,Ca,Sr)_2(Al,Fe^{3+})_3(SiO_4)_3(OH)$
Khristovite-(Ce)	$(Ca,REE)REE(Mg,Fe^{2+})AlMn^{2+}Si_3O_{11}(OH)(F,O)$
Mukhinite	$Ca_2Al_2V^{3+}(SiO_4)_3(OH)$
Piemontite	$Ca_2(Al,Mn^{3+},Fe^{3+})_3(SiO_4)_3(OH)$
Strontiopiemontite	$CaSr(Al,Mn^{3+},Fe^{3+})_3Si_3O_{11}O(OH)$
Zoisite	$Ca_2Al_3(SiO_4)_3(OH)$

Ettringite Group

Hexagonal sulfates of general formula $Ca_6X_2Y(O,OH)_{12}\cdot 24–26H_2O$, X = Al, Cr^{3+} Fe^{3+}, Mn^{2+}, Mn^{4+}, Si; Y = $(SO_4,CO_3)_3$ or $(SO_4)_2B(OH)_4$.

Bentorite	$Ca_6(Cr,Al)_2(SO_4)_3(OH)_{12}\cdot 26H_2O$
Charlesite	$Ca_6(Al,Si)_2(SO_4)_2B(OH)_4(OH,O)_{12}\cdot 26H_2O$
Ettringite	$Ca_6Al_2(SO_4)_3(OH)_{12}\cdot 26H_2O$
Jouravskite	$Ca_6Mn_2^{4+}(SO_4,CO_3)_4(OH)_{12}\cdot 26H_2O$
Sturmanite	$Ca_6(Fe^{3+},Al,Mn^{2+})_2(SO_4)_2[B(OH)_4](OH)_{12}\cdot 25H_2O$
Thaumasite	$Ca_6Si_2(CO_3)_2(SO_4)_2(OH)_{12}\cdot 24H_2O$

Fairfieldite Group

Triclinic arsenates and phosphates of general formula $Ca_2B(XO_4)_2\cdot 2H_2O$, B = Co, Fe^{2+}, Mg, Mn^{2+}, Ni, Zn; X = As, P.

Cassidyite	$Ca_2(Ni,Mg)(PO_4)_2\cdot 2H_2O$
Collinsite	$Ca_2(Mg,Fe^{2+})(PO_4)_2\cdot 2H_2O$
Fairfieldite	$Ca_2(Mn^{2+},Fe^{2+})(PO_4)_2\cdot 2H_2O$
Gaitite	$Ca_2Zn(AsO_4)_2\cdot 2H_2O$
Messelite	$Ca_2(Fe^{2+},Mn^{2+})(PO_4)_2\cdot 2H_2O$
Parabrandtite	$Ca_2Mn^{2+}(AsO_4)_2\cdot 2H_2O$
Roselite-beta	$Ca_2Co(AsO_4)_2\cdot 2H_2O$
Talmessite	$Ca_2Mg(AsO_4)_2\cdot 2H_2O$

Feldspar Group

Silicates of general formula XZ_4O_8, monoclinic, triclinic, orthorhombic, X = Ba, Ca, K, Na, NH_4, Sr; Z = Al, B, Si.

Albite	$NaAlSi_3O_8$
Andesine	see **Plagioclase**
Anorthite	$CaAl_2Si_2O_8$
Anorthoclase	$(Na,K)AlSi_3O_8$
Banalsite	$BaNa_2Al_4Si_4O_{16}$
Buddingtonite	$(NH_4)AlSi_3O_8$
Bytownite	see **Plagioclase**
Celsian	$BaAl_2Si_2O_8$
Dmisteinbergite	$CaAl_2Si_2O_8$
Hyalophane	$(K,Ba)Al(Si,Al)_3O_8$
Labradorite	see **Plagioclase**
Microcline	$KAlSi_3O_8$
Oligoclase	see **Plagioclase**
Orthoclase	$KAlSi_3O_8$
Paracelsian	$BaAl_2Si_2O_8$
Plagioclase	$(Na,Ca)Al(Al,Si)Si_2O_8$
Reedmergnerite	$NaBSi_3O_8$
Sanidine	a mon. K-Na feldspar
Slawsonite	$(Sr,Ca)Al_2Si_2O_8$
Stronalsite	$SrNa_2Al_4Si_4O_{16}$
Svyatoslavite	$CaAl_2Si_2O_8$

Ferrotapiolite Group

Tetragonal oxides of general formula $A^{2+}B_2^{5+}O_6$, A^{2+} = Fe, Mg, Mn, Zn; B^{5+} = Nb, Sb, Ta.

Byströmite	$MgSb_2^{5+}O_6$
Ferrotapiolite	$(Fe^{2+},Mn^{2+})(Ta,Nb)_2O_6$
Manganotapiolite	$(Mn^{2+},Fe^{2+})(Ta,Nb)_2O_6$
Ordonezite	$ZnSb_2^{5+}O_6$
Tripuhyite	$Fe^{2+}Sb_2^{5+}O_6$

Gadolinite Group

Monoclinic silicates of general formula $W_{2-3}X(B,Be)_2(Si,B)_2(O,OH)_{10}$, W = Ca, Ce, Y, Yb; X = Y, Fe^{2+}, Mg.

Bakerite	$Ca_4B_4(BO_4)(SiO_4)_3(OH)_3 \cdot H_2O$
Datolite	$Ca_2B_2Si_2O_8(OH)_2$
Gadolinite-(Ce)	$(Ce,La,Nd,Y)_2Fe^{2+}Be_2Si_2O_{10}$
Gadolinite-(Y)	$Y_2Fe^{2+}Be_2Si_2O_{10}$
Hingganite-(Ce)	$Ce_2Be_2Si_2O_8(OH)_2$

Hingganite-(Y)	$(Y,Yb,Er)_2Be_2Si_2O_8(OH)_2$
Hingganite-(Yb)	$(Yb,Y)_2Be_2Si_2O_8(OH)_2$
Homilite	$Ca_2(Fe^{2+},Mg)B_2Si_2O_{10}$
Minasgeraisite-(Y)	$CaY_2Be_2Si_2O_{10}$

The phosphates Drugmanite, Herderite, and Hydroxylherderite and the arsenate Bergslagite are structurally related to the silicates of this group.

Garnet Group

Cubic silicates of general formula $A_3B_2(SiO_4)_3$; (for Hibschite and Katoite, $A_3B_2(SiO_4)_{3-x}(OH)_{4x}$), A = Ca, Fe^{2+}, Mg, Mn^{2+}; B = Al, Cr^{3+}, Fe^{3+}, Mn^{3+}. Si, Ti, V^{3+}, Zr; Si is partly replaced by Al, Fe^{3+}.

Almandine	$Fe_3^{2+}Al_2(SiO_4)_3$
Andradite	$Ca_3Fe_2^{3+}(SiO_4)_3$
Calderite	$(Mn^{2+},Ca)_3(Fe^{3+},Al)_2(SiO_4)_3$
Goldmanite	$Ca_3(V,Al,Fe^{3+})_2(SiO_4)_3$
Grossular	$Ca_3Al_2(SiO_4)_3$
Hibschite	$Ca_3Al_2(SiO_4)_{3-x}(OH)_{4x}$
Katoite	$Ca_3Al_2(SiO_4)_{3-x}(OH)_{4x}$
Kimzeyite	$Ca_3(Zr,Ti)_2(Si,Al,Fe^{3+})_3O_{12}$
Knorringite	$Mg_3Cr_2(SiO_4)_3$
Majorite	$Mg_3(Fe,Al,Si)_2(SiO_4)_3$
Pyrope	$Mg_3Al_2(SiO_4)_3$
Schorlomite	$Ca_3Ti_2^{4+}(Fe_2^{3+}Si)O_{12}$
Spessartine	$Mn_3^{2+}Al_2(SiO_4)_3$
Uvarovite	$Ca_3Cr_2(SiO_4)_3$

The tellurate Yafsoanite, the arsenates Berzeliite and Manganberzeliite, the vanadate Palenzonaite, and the halide Cryolithionite are isostructural with the minerals of the Garnet group. Henritermierite is a related mineral.

Halotrichite Group

Monoclinic sulfates of general formula $AB_2(SO_4)_4 \cdot 22H_2O$, A = Fe^{2+}, Mg, Mn^{2+}, Ni, Zn; B = Al, Cr^{3+}, Fe^{3+}.

Apjohnite	$Mn^{2+}Al_2(SO_4)_4 \cdot 22H_2O$
Bilinite	$Fe^{2+}Fe_2^{3+}(SO_4)_4 \cdot 22H_2O$
Dietrichite	$(Zn,Fe^{2+},Mn^{2+})Al_2(SO_4)_4 \cdot 22H_2O$
Halotrichite	$Fe^{2+}Al_2(SO_4)_4 \cdot 22H_2O$
Pickeringite	$MgAl_2(SO_4)_4 \cdot 22H_2O$
Redingtonite	$(Fe^{2+},Mg,Ni)(Cr,Al)_2(SO_4)_4 \cdot 22H_2O$

Hauchecornite Group

Tetragonal sulfosalts of general formula A_9BCS_8, A = Co, Ni; B = As, Bi, Sb; C = Bi, Sb, Te.

Arsenohauchecornite	Ni_9BiAsS_8
Bismutohauchecornite	$Ni_9Bi_2S_8$
Hauchecornite	$Ni_9Bi(Sb,Bi)S_8$
Tellurohauchecornite	Ni_9BiTeS_8
Tucekite	$Ni_4Sb_2S_8$

Hematite Group

Trigonal oxides of general formula R_2O_3, R = Al, Cr^{3+}, Fe^{3+}, V^{3+}.

Corundum	Al_2O_3
Eskolaite	Cr_2O_3
Hematite	α-Fe_2O_3
Karelianite	V_2O_3

Hexahydrite Group

Monoclinic sulfates of general formula $M^{2+}SO_4 \cdot 6H_2O$, M^{2+} = Co, Fe, Mg, Mn, Ni, Zn.

Bianchite	$(Zn,Fe^{2+})(SO_4) \cdot 6H_2O$
Chvaleticeite	$(Mn^{2+},Mg)SO_4 \cdot 6H_2O$
Ferrohexahydrite	$Fe^{2+}SO_4 \cdot 6H_2O$
Hexahydrite	$MgSO_4 \cdot 6H_2O$
Moorhouseite	$(Co,Ni,Mn^{2+})SO_4 \cdot 6H_2O$
Nickelhexahydrite	$(Ni,Mg,Fe^{2+})(SO_4) \cdot 6H_2O$

Humite Group

Silicates, orthorhombic or monoclinic, that form a morphotropic series with Olivine, with compositions A_2SiO_4, $A_2SiO_4 \cdot A(OH)_2$, $2A_2SiO_4 \cdot A(OH)_2$, $3A_2SiO_4 \cdot A(OH)_2$, $4A_2SiO_4 \cdot A(OH)_2$; A = Fe^{2+}, Mg, Mn^{2+}; (OH) is partially replaced by F.

Alleghanyite	$Mn_5^{2+}(SiO_4)_2(OH)_2$
Chondrodite	$(Mg,Fe^{2+})_5(SiO_4)_2(F,OH)_2$
Clinohumite	$(Mg,Fe^{2+})_9(SiO_4)_4(F,OH)_2$
Humite	$(Mg,Fe^{2+})_7(SiO_4)_3(F,OH)_2$
Jerrygibbsite	$Mn_9^{2+}(SiO_4)_4(OH)_2$
Leucophoenicite	$Mn_7^{2+}(SiO_4)_3(OH)_2$
Manganhumite	$(Mn^{2+},Mg)_7(SiO_4)_3(OH)_2$
Norbergite	$Mg_3(SiO_4)(F,OH)_2$
Ribbeite	$(Mn^{2+},Mg)_5(SiO_4)_2(OH)_2$
Sonolite	$Mn_9^{2+}(SiO_4)_4(OH,F)_2$

Hydrotalcite Group

Trigonal carbonates of general formula $A_6B_2(CO_3)(OH)_{16}\cdot 4H_2O$, A = Mg, Ni; B = Al, Cr^{3+}, Fe^{3+}, Mn^{2+}, Co^{3+}. Compare the Manasseite group; see also **75**, 242–243 (1990).

Comblainite	$Ni_6^{2+}Co_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$
Desautelsite	$Mg_6Mn_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$
Hydrotalcite	$Mg_6Al_2(CO_3)(OH)_{16}\cdot 4H_2O$
Iowaite	$Mg_6Fe_2^{3+}(OH)_{16}Cl_2\cdot 4H_2O$
Pyroaurite	$Mg_6Fe_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$
Reevesite	$Ni_6Fe_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$
Stichtite	$Mg_6Cr_2(CO_3)(OH)_{16}\cdot 4H_2O$
Takovite	$Ni_6Al_2(OH)_{16}(CO_3,OH)\cdot 4H_2O$

Meixnerite and the sulfates Honessite and Wermlandite are structurally related to the minerals of this group.

Ilmenite Group

Trigonal oxides of general formula $M^{2+}TiO_3$, M^{2+} = Fe, Mg, Mn, Zn.

Ecandrewsite	$(Zn,Fe^{2+},Mn^{2+})TiO_3$
Geikielite	$MgTiO_3$
Ilmenite	$Fe^{2+}TiO_3$
Pyrophanite	$Mn^{2+}TiO_3$

Joaquinite Group

Orthorhombic and monoclinic titanosilicates of general formula $A_6(Ti,Nb)_2Si_8(O,OH)_{26}\cdot H_2O$; A = Ba, Ce, Fe^{2+}, Mn^{2+}, Na, Sr.

Bario-orthojoaquinite	$(Ba,Sr)_4Fe_2^{2+}Ti_2Si_8O_{26}\cdot H_2O$
Byelorussite-(Ce)	$NaMn^{2+}Ba_2Ce_2Ti_2Si_8O_{26}(F,OH)\cdot H_2O$
Joaquinite-(Ce)	$Ba_2NaCe_2Fe^{2+}(Ti,Nb)_2Si_8O_{26}(OH,F)\cdot H_2O$
Orthojoaquinite-(Ce)	$Ba_2NaCe_2Fe^{2+}Ti_2Si_8O_{26}(O,OH)\cdot H_2O$
Strontiojoaquinite	$Sr_2Ba_2(Na,Fe^{2+})_2Ti_2Si_8O_{24}(O,OH)_2\cdot H_2O$
Strontio-orthojoaquinite	$Sr_2Ba_2(Na,Fe^{2+})_2Ti_2Si_8O_{24}(O,OH)_2\cdot H_2O$

Kaolinite-Serpentine Group

Silicates, triclinic, monolinic, orthorhombic, trigonal, hexagonal, of general formula $M_{2-3}Z_2O_5(OH)_4\cdot nH_2O$, M = Al, Fe^{3+}, Fe^{2+}, Mg, Mn^{2+}, Ni, Zn; Z = Al, Fe^{2+}, Si.

Amesite	$Mg_2Al(SiAl)O_5(OH)_4$
Antigorite	$(Mg,Fe^{2+})_3Si_2O_5(OH)_4$
Berthierine	$(Fe^{2+},Fe^{3+},Mg)_{2-3}(Si,Al)_2O_5(OH)_4$
Brindleyite	$(Ni,Mg,Fe^{2+})_2Al(SiAl)O_5(OH)_4$
Clinochrysotile	$Mg_3Si_2O_5(OH)_4$
Cronstedtite	$Fe_2^{2+}Fe^{3+}(SiFe^{3+})O_5(OH)_4$
Dickite	$Al_2Si_2O_5(OH)_4$

Endellite	$Al_2Si_2O_5(OH)_4 \cdot 2H_2O$
Fraipontite	$(Zn,Al)_3(Si,Al)_2O_5(OH)_4$
Greenalite	$(Fe^{2+},Fe^{3+})_{2-3}Si_2O_5(OH)_4$
Halloysite	$Al_2Si_2O_5(OH)_4$
Kaolinite	$Al_2Si_2O_5(OH)_4$
Kellyite	$(Mn^{2+},Mg,Al)_3(Si,Al)_2O_5(OH)_4$
Lizardite	$Mg_3Si_2O_5(OH)_4$
Manandonite	$LiAl_2(SiAl_{0.5}B_{0.5})O_5(OH)_4$
Nacrite	$Al_2Si_2O_5(OH)_4$
Nepouite	$Ni_3Si_2O_5(OH)_4$
Odinite	$(Fe^{3+},Mg,Al,Fe^{2+})_{2.5}(Si,Al)_2O_5(OH)_4$
Orthochrysotile	$Mg_3Si_2O_5(OH)_4$
Parachrysotile	$Mg_3Si_2O_5(OH)_4$
Pecoraite	$Ni_3Si_2O_5(OH)_4$

Kieserite Group

Monoclinic sulfates of general formula $M^{2+}SO_4 \cdot H_2O$, M^{2+} = Cu, Fe, Mg, Mn, Ni, Zn.

Dwornikite	$(Ni,Fe^{2+})SO_4 \cdot H_2O$
Gunningite	$(Zn,Mn^{2+})SO_4 \cdot H_2O$
Kieserite	$MgSO_4 \cdot H_2O$
Poitevinite	$(Cu^{2+},Fe^{2+},Zn)SO_4 \cdot H_2O$
Szmikite	$Mn^{2+}(SO_4) \cdot H_2O$
Szomolnokite	$Fe^{2+}SO_4 \cdot H_2O$

Lazulite Group

Monoclinic phosphates of general formula $A^{2+}B_2^{3+}(PO_4)_2(OH)_2$; A^{2+} = Cu, Fe, Mg; B^{3+} = Al, Fe.

Barbosalite	$Fe^{2+}Fe_2^{3+}(PO_4)_2(OH)_2$
Hentschelite	$Cu^{2+}Fe_2^{3+}(PO_4)_2(OH)_2$
Lazulite	$MgAl_2(PO_4)_2(OH)_2$
Scorzalite	$(Fe^{2+},Mg)Al_2(PO_4)_2(OH)_2$

Linnaeite Group

Cubic sulfides of general formula $A^{2+}B_2^{3+}X_4$, A^{2+} = Co, Cu, Fe, Ni, Zn; B^{3+} = Co, Cr, Fe, In, Ni, Sb; X = S, Se. Compare the oxides of Spinel group.

Bornhardtite	$Co^{2+}Co_2^{3+}Se_4$
Carrollite	$Cu(Co,Ni)_2S_4$
Daubreelite	$Fe^{2+}Cr_2S_4$
Fletcherite	$Cu(Ni,Co)_2S_4$
Florensovite	$(Cu,Zn)(Cr,Sb)_2S_4$

Greigite	$Fe^{2+}Fe_2^{3+}S_4$
Indite	$Fe^{2+}In_2S_4$
Kalininite	$ZnCr_2S_4$
Linnaeite	$Co^{2+}Co_2^{3+}S_4$
Polydymite	$NiNi_2S_4$
Siegenite	$(Ni,Co)_3S_4$
Trüstedtite	Ni_3Se_4
Tyrrellite	$(Cu,Co,Ni)_3Se_4$
Violarite	$Fe^{2+}Ni_2^{3+}S_4$

Löllingite Group

Orthorhombic arsenides and antimonides of general formula AB_2, A = Co, Fe, Ni; B = As, S, Sb.

Costibite	$CoSbS$
Löllingite	$FeAs_2$
Nisbite	$NiSb_2$
Rammelsbergite	$NiAs_2$
Safflorite	$(Co,Fe)As_2$
Seinäjokite	$(Fe,Ni)(Sb,As)_2$

Lovozerite Group

Trigonal and orthorhombic silicates of general formula $A_6B_{2-x}C_{1-y}Si_6(O,OH)_{18}$, A = Na, H; B = Ca, Mn, Fe; C = Ti, Zr.

Imandrite	$Na_6Ca_{1.5}Fe^{3+}Si_6O_{18}$
Kazakovite	$Na_6(Mn^{2+},H_2)TiSi_6O_{18}$
Koashvite	$Na_6(Ca,Mn)(Ti,Fe)Si_6O_{18}\cdot H_2O$
Lovozerite	$Na_2Ca(Zr,Ti)Si_6(O,OH)_{18}$
Petarasite	$Na_5Zr_2Si_6O_{18}(Cl,OH)\cdot 2H_2O$
Tisinalite	$Na_3H_3(Mn^{2+},Ca,Fe)TiSi_6(O,OH)_{18}\cdot 2H_2O$
Zirsinalite	$Na_6(Ca,Mn,Fe^{2+})ZrSi_6O_{18}$

Ludwigite Group

Orthorhombic borates of general formula $X_2Y(BO_5)$, X = Fe^{2+}, Mg, Ni; Y = Al, Fe^{3+}, Mg, Mn^{3+}, Sb, Ti.

Azoproite	$(Mg,Fe^{2+})_2(Fe^{3+},Ti,Mg)BO_5$
Bonaccordite	$Ni_2Fe^{3+}BO_5$
Chestermanite	$Mg_2(Fe^{3+},Mg,Al,Sb^{5+})BO_5$
Fredrikssonite	$Mg_2(Mn^{3+},Fe^{3+})BO_5$
Ludwigite	$Mg_2Fe^{3+}BO_5$
Vonsenite	$Fe_2^{2+}Fe^{3+}BO_5$

Compare Hulsite, Orthopinakiolite, Pinakiolite, Takeuchiite.

Magnetoplumbite Group

Hexagonal oxides of general formula $AB_{12}O_{19}$, A = Ba, Ca, Ce, K, Pb; B = Al, Cr^{3+}, Fe^{2+}, Fe^{2+} Mg, Mn^{3+} Ti.

Hawthorneite	$Ba(Ti_3Cr_4Fe_2^{2+}Fe_2^{3+}Mg)O_{19}$
Hibonite	$(Ca,Ce)(Al,Ti,Mg)_{12}O_{19}$
Magnetoplumbite	$Pb(Fe^{3+},Mn^{3+})_{12}O_{19}$
Yimengite	$K(Cr^{3+},Ti,Fe^{3+},Mg)_{12}O_{19}$

Manasseite Group

Hexagonal carbonates of general formula $Mg_6B_2(CO_3)(OH)_{16}\cdot 4H_2O$, B = Al, Cr^{3+}, Fe^{3+}. Compare the Hydrotalcite group; see also **75**, 242–243 (1990).

Barbertonite	$Mg_6Cr_2(CO_3)(OH)_{16}\cdot 4H_2O$
Chlormagaluminite	$(Mg,Fe^{2+})_4Al_2(OH)_{12}(Cl_2,CO_3)\cdot 2H_2O$
Manasseite	$Mg_6Al_2(CO_3)(OH)_{16}\cdot 4H_2O$
Sjögrenite	$Mg_6Fe_2^{3+}(CO_3)(OH)_{16}\cdot 4H_2O$

Marcasite Group

Orthorhombic sulfides, selenides, and tellurides of general formula AX_2, A = Co, Fe, Ni; X = S, Se, Te. Compare the Pyrite group.

Ferroselite	$FeSe_2$
Frohbergite	$FeTe_2$
Hastite	$CoSe_2$
Kullerudite	$NiSe_2$
Marcasite	FeS_2
Mattagamite	$CoTe_2$

Melanterite Group

Monoclinic sulfates of general formula $A^{2+}SO_4\cdot 7H_2O$, A^{2+} = Co, Cu, Fe, Mn, Zn.

Bieberite	$CoSO_4\cdot 7H_2O$
Boothite	$CuSO_4\cdot 7H_2O$
Mallardite	$Mn^{2+}SO_4\cdot 7H_2O$
Melanterite	$Fe^{2+}SO_4\cdot 7H_2O$
Zinc-melanterite	$(Zn,Cu^{2+},Fe^{2+})SO_4\cdot 7H_2O$

Melilite Group

Tetragonal silicates of general formula A_2BZSiO_7, A = Na, Ca; B = Al, Be, Mg, Zn; Z = Al, Si.

Akermanite	$Ca_2MgSi_2O_7$
Gehlenite	$Ca_2Al(AlSi)O_7$
Gugiaite	$Ca_2BeSi_2O_7$
Hardystonite	$Ca_2ZnSi_2O_7$

Melilite a mineral of the series **Akermanite-Gehlenite**

Jeffreyite, Leucophanite, and Meliphanite are silicates structurally related to the minerals of this group.

Melonite Group

Trigonal sulfides and tellurides of general formula AB_2, A = Ni, Pd, Pt, Sn; B = Bi, S, Se, Te.

Berndtite-2T	SnS_2
Berndtite-4H	SnS_2
Kitkaite	NiTeSe
Melonite	$NiTe_2$
Merenskyite	$(Pd,Pt)(Te,Bi)_2$
Moncheite	$(Pt,Pd)(Te,Bi)_2$

Meta-autunite Group

Tetragonal or orthorhombic uranyl phosphates and arsenates of general formula $A(UO_2)_2(XO_4)_2 \cdot nH_2O$; A = Ba, Ca, Co, Cu^{2+}, Fe^{2+}, $(H_3O)_2$, K_2, Mg, $(NH_4)_2$, Zn; X = As^{5+}, P^{5+}.

Abernathyite	$K_2(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Bassetite	$Fe^{2+}(UO_2)_2(PO_4)_2 \cdot 8H_2O$
Chernikovite	$(H_3O)_2(UO_2)_2(PO_4)_2 \cdot 6H_2O$
Meta-ankoleite	$K_2(UO_2)_2(PO_4)_2 \cdot 6H_2O$
Meta-autunite	$Ca(UO_2)_2(PO_4)_2 \cdot 2–6H_2O$
Metaheinrichite	$Ba(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Metakahlerite	$Fe^{2+}(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Metakirchheimerite	$Co(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Metalodevite	$Zn(UO_2)_2(AsO_4)_2 \cdot 10H_2O$
Metanovacekite	$Mg(UO_2)_2(AsO_4)_2 \cdot 4–8H_2O$
Metatorbernite	$Cu^{2+}(UO_2)_2(PO_4)_2 \cdot 8H_2O$
Meta-uranocircite	$Ba(UO_2)_2(PO_4)_2 \cdot 8H_2O$
Meta-uranospinite	$Ca(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Metazeunerite	$Cu^{2+}(UO_2)_2(AsO_4)_2 \cdot 8H_2O$
Sodium uranospinite	$(Na_2,Ca)(UO_2)_2(AsO_4)_2 \cdot 5H_2O$
Uramphite	$(NH_4)_2(UO_2)_2(PO_4)_2 \cdot 6H_2O$

Mica Group

Monoclinic, pseudohexagonal silicates, characterized by very perfect basal cleavage, of general formula $XY_{2-3}Z_4O_{10}(OH,F)_2$, (or $XY_3Si_4O_{12}$), X = Ba, Ca, Cs, (H_3O), K, Na, (NH_4); Y = Al, Cr^{3+}, Fe^{2+}, Fe^{3+}, Li, Mg, Mn^{2+}, Mn^{3+}, V^{3+}, Zn; Z = Al, Be, Fe^{2+}, Si.

Anandite	$(Ba,K)(Fe^{2+},Mg)_3(Si,Al,Fe)_4O_{10}(O,OH)_2$
Annite	$KFe^{2+}_3AlSi_3O_{10}(OH,F)_2$

Biotite	$K(Mg,Fe^{2+})_3(Al,Fe^{3+})Si_3O_{10}(OH,F)_2$
Bityite	$CaLiAl_2(AlBeSi_2)O_{10}(OH)_2$
Boromuscovite	$KAl_2BSi_3O_{10}(OH,F)_2$
Celadonite	$K(Mg,Fe^{2+})(Fe^{3+},Al)Si_4O_{10}(OH)_2$
Chernykhite	$(Ba,Na)(V^{3+},Al)_2(Si,Al)_4O_{10}(OH)_2$
Clintonite	$Ca(Mg,Al)_3(Al_3Si)O_{10}(OH)_2$
Ephesite	$NaLiAl_2(Al_2Si_2)O_{10}(OH)_2$
Ferri-annite	$K(Fe^{2+},Mg)_3(Fe^{3+},Al)Si_3O_{10}(OH)_2$
Glauconite	$(K,Na)(Fe^{3+},Al,Mg)_2(Si,Al)_4O_{10}(OH)_2$
Hendricksite	$K(Zn,Mg,Mn^{2+})_3(Si_3Al)O_{10}(OH)_2$
Kinoshitalite	$(Ba,K)(Mg,Mn,Al)_3Si_2Al_2O_{10}(OH)_2$
Lepidolite	$K(Li,Al)_3(Si,Al)_4O_{10}(F,OH)_2$
Margarite	$CaAl_2(Al_2Si_2)O_{10}(OH)_2$
Masutomilite	$K(Li,Al,Mn^{2+})_3(Si,Al)_4O_{10}(F,OH)_2$
Muscovite	$KAl_2(Si_3Al)O_{10}(OH,F)_2$
Nanpingite	$Cs(Al,Mg,Fe^{2+},Li)_2(Si_3Al)O_{10}(OH,F)_2$
Norrishite	$KLiMn^{3+}_2Si_4O_{12}$
Paragonite	$NaAl_2(Si_3Al)O_{10}(OH)_2$
Phlogopite	$KMg_3Si_3AlO_{10}(F,OH)_2$
Polylithionite	$KLi_2AlSi_4O_{10}(F,OH)_2$
Preiswerkite	$Na(Mg_2Al)(Si_2Al_2)O_{10}(OH)_2$
Roscoelite	$K(V^{3+},Al,Mg)_2(AlSi_3)O_{10}(OH)_2$
Siderophyllite	$KFe^{2+}_2Al(Al_2Si_2)O_{10}(F,OH)_2$
Sodium phlogopite	$NaMg_3(Si_3Al)O_{10}(OH)_2$
Taeniolite	$KLiMg_2Si_4O_{10}F_2$
Tobelite	$(NH_4,K)Al_2(Si_3Al)O_{10}(OH)_2$
Wonesite	$(Na,K)_{0.5}(Mg,Fe,Al)_3(Si,Al)_4O_{10}(OH,F)_2$
Zinnwaldite	$KLiFe^{2+}Al(AlSi_3)O_{10}(F,OH)_2$

Norrishite is an oxymica. Compare Brammallite, Illite, Rectorite.

Mixite Group

Hexagonal arsenates and phosphates of general formula $ACu_6(XO_4)_3(OH)_6\cdot 3H_2O$, A = Al, Bi, Ca, Ce, La, Nd, Y; X = As, P.

Agardite-(La)	$(La,Ca)Cu_6(AsO_4)_3(OH)_6\cdot 3H_2O$
Agardite-(Y)	$(Y,Ca)Cu_6(AsO_4)_3(OH)_6\cdot 3H_2O$
Goudeyite	$(Al,Y)Cu^{2+}_6(AsO_4)_3(OH)_6\cdot 3H_2O$
Mixite	$BiCu^{2+}_6(AsO_4)_3(OH)_6\cdot 3H_2O$
Petersite-(Y)	$(Y,Ce,Nd,Ca)Cu^{2+}_6(PO_4)_3(OH)_6\cdot 3H_2O$

Monazite Group

Monoclinic arsenates, phosphates, silicates, of general formula ABO_4, A = Bi, Ca, Ce, La, Nd, Th; B = As^{5+}, P^{5+}, Si^{4+}.

Brabantite	$Ca_{0.5}Th_{0.5}PO_4$
Cheralite	$(Ca,Ce,Th)(P,Si)O_4$
Gasparite-(Ce)	$(Ce,La,Nd)AsO_4$
Huttonite	$ThSiO_4$
Monazite-(Ce)	$(Ce,La,Nd,Th)PO_4$
Monazite-(La)	$(La,Ce,Nd)PO_4$
Monazite-(Nd)	$(Nd,La,Ce)PO_4$
Rooseveltite	$BiAsO_4$

Montgomeryite Group

Monoclinic phosphates of general formula $Ca_4A^{2+}B_4^{3+}(PO_4)_6(OH)_4 \cdot 12H_2O$, A^{2+} = Fe, Mg, Mn; B^{3+} = Al, Fe.

Calcioferrite	$Ca_4Fe^{2+}(Fe^{3+},Al)_4(PO_4)_6(OH)_4 \cdot 13H_2O$
Kingsmountite	$(Ca,Mn^{2+})_4(Fe^{2+},Mn^{2+})Al_4(PO_4)_6(OH)_4 \cdot 12H_2O$
Montgomeryite	$Ca_4MgAl_4(PO_4)_6(OH)_4 \cdot 12H_2O$
Zodacite	$Ca_4Mn^{2+}Fe_4^{3+}(PO_4)_6(OH)_4 \cdot 12H_2O$

Montmorillonite Group

See Smectite group.

Nickeline Group

Hexagonal antimonides, arsenides, bismuthides, selenides, stannides, and tellurides of general formula AX, A = Co, Ni, Pd, Pt; X = As, Bi, Sb, Se, Sn, Te.

Breithauptite	NiSb
Freboldite	CoSe
Imgreite	NiTe (?)
Langisite	(Co,Ni)As
Nickeline	NiAs
Niggliite	PtSn
Sederholmite	β-NiSe
Sobolevskite	PdBi
Stumpflite	Pt(Sb,Bi)
Sudburyite	(Pd,Ni)Sb

Olivine Group

Orthorhombic silicates of general formula $A_2^{2+}SiO_4$, A^{2+} = Fe, Mg, Mn, Ni.

Fayalite	$Fe_2^{2+}SiO_4$
Forsterite	Mg_2SiO_4

Liebenbergite	$(Ni,Mg)_2SiO_4$
Tephroite	$Mn^{2+}_2SiO_4$

Osumilite Group

Hexagonal and orthorhombic silicates of general formula $A_{1-2}B_{2-3}C_3Z_{12}O_{30}\cdot nH_2O$, A = Ba, Ca, K, Na; B = Fe^{2+}, Li, Mg, Mn^{2+}, Na, Sn, Ti, Zn, Zr; C = Al, B, Be, Fe^{2+}, Fe^{3+}, Li, Mg; Z = Al, Si.

Armenite (?)	$BaCa_2Al_6Si_9O_{30}\cdot 2H_2O$
Brannockite	$KSn_2Li_3Si_{12}O_{30}$
Chayesite	$K(Mg,Fe^{2+})_4Fe^{3+}Si_{12}O_{30}$
Darapiosite	$KNa_2Li(Mn,Zn)_2ZrSi_{12}O_{30}$
Eifelite	$KNa_3Mg_4Si_{12}O_{30}$
Emeleusite	$Na_4Li_2Fe^{3+}_2Si_{12}O_{30}$
Merrihueite	$(K,Na)_2(Fe^{2+},Mg)_5Si_{12}O_{30}$
Milarite	$KCa_2AlBe_2Si_{12}O_{30}\cdot 0.5H_2O$
Osumilite	$(K,Na)(Fe^{2+},Mg)_2(Al,Fe^{3+})_3(Si,Al)_{12}O_{30}$
Osumilite-(Mg)	$(K,Na)(Mg,Fe^{2+})_2(Al,Fe^{3+})_3(Si,Al)_{12}O_{30}$
Poudretteite	$KNa_2B_3Si_{12}O_{30}$
Roedderite	$(Na,K)_2(Mg,Fe^{2+})_5Si_{12}O_{30}$
Sogdianite	$(K,Na)_2(Li,Fe^{2+})_3(Zr,Ti,Fe^{3+})Si_{12}O_{30}$
Sugilite	$KNa_2(Fe^{2+},Mn^{2+},Al)_2Li_3Si_{12}O_{30}$
Yagiite	$(Na,K)_{1.5}Mg_2(Al,Mg)_3(Si,Al)_{12}O_{30}$

Overite Group

Orthorhombic phosphates of general formula $ABC(PO_4)_2(OH)\cdot 2–4H_2O$, A = Ca, Mn, Zn; B = Mg, Fe^{2+}, Mn^{2+}; C = Al, Fe^{3+}.

Lun'okite	$(Mn^{2+},Ca)(Mg,Fe^{2+},Mn^{2+})Al(PO_4)_2(OH)\cdot 4H_2O$
Manganosegelerite	$(Mn^{2+},Ca)(Mn^{2+},Fe^{2+},Mg)Fe^{3+}(PO_4)_2(OH)\cdot 4H_2O$
Overite	$CaMgAl(PO_4)_2(OH)\cdot 4H_2O$
Segelerite	$CaMgFe^{3+}(PO_4)_2(OH)\cdot 4H_2O$
Wilhelmvierlingite	$CaMn^{2+}Fe^{3+}(PO_4)_2(OH)\cdot 2H_2O$

Paravauxite Group

Triclinic phosphates of general formula $AB_2(PO_4)_2(OH)_2\cdot 8H_2O$ or $AB_2(PO_4)_2(OH)_3\cdot 7–8H_2O$, A = Mg, Fe^{2+}, Mn^{2+}, Fe^{3+}; B = Al, Fe^{3+}, Cr^{3+}.

Gordonite	$MgAl_2(PO_4)_2(OH)_2\cdot 8H_2O$
Laueite	$Mn^{2+}Fe^{3+}_2(PO_4)_2(OH)_2\cdot 8H_2O$
Paravauxite	$Fe^{2+}Al_2(PO_4)_2(OH)_2\cdot 8H_2O$
Sigloite	$Fe^{3+}Al_2(PO_4)_2(OH)_3\cdot 7H_2O$
Ushkovite	$MgFe^{3+}_2(PO_4)_2(OH)_2\cdot 8H_2O$

Pentlandite Group

Cubic sulfides of general formula AB_8X_8, A = Ag, Cd, Co, Fe, Mn, Ni, Pb; B = Co, Cu, Fe, Ni; X = S, Se.

Argentopentlandite	$Ag(Fe,Ni)_8S_8$
Cobalt pentlandite	Co_9S_8
Geffroyite	$(Ag,Cu,Fe)_9(Se,S)_8$
Manganese-shadlunite	$(Mn,Pb,Cd)(Cu,Fe)_8S_8$
Pentlandite	$(Fe,Ni)_9S_8$
Shadlunite	$(Pb,Cd)(Fe,Cu)_8S_8$

Periclase Group

Cubic oxides of general formula $M^{2+}O$, M^{2+} = Cd, Fe, Mg, Mn, Ni.

Bunsenite	NiO
Manganosite	$Mn^{2+}O$
Monteponite	CdO
Periclase	MgO
Wüstite	$Fe^{2+}O$

Perovskite Group

Pseudocubic oxides, orthorhombic, or monoclinic, of general formula ABO_3, A = Ca, Ce, Na, Sr; B = Nb, Ti, Fe.

Latrappite	$(Ca,Na)(Nb,Ti,Fe)O_3$
Loparite-(Ce)	$(Ce,Na,Ca)(Ti,Nb)O_3$
Lueshite	$NaNbO_3$
Perovskite	$CaTiO_3$
Tausonite	$SrTiO_3$

Picromerite Group

Monoclinic sulfates of general formula $A_2B^{2+}(SO_4)_2 \cdot 6H_2O$, A = K, (NH_4); B^{2+} = Cu, Fe, Mg, Ni.

Boussingaultite	$(NH_4)_2Mg(SO_4)_2 \cdot 6H_2O$
Cyanochroite	$K_2Cu^{2+}(SO_4)_2 \cdot 6H_2O$
Mohrite	$(NH_4)_2Fe^{2+}(SO_4)_2 \cdot 6H_2O$
Nickel-boussingaultite	$(NH_4)_2(Ni,Mg)(SO_4)_2 \cdot 6H_2O$
Picromerite	$K_2Mg(SO_4)_2 \cdot 6H_2O$

Plumbogummite Group = Crandalite group.

Pumpellyite Group

Monoclinic silicates of general formula $Ca_2XY_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$, X Al, Fe^{2+}, Fe^{3+}, Mg, Mn^{2+}; y = Al, Fe^{3+}, Cr^{3+}, Mn^{3+}. See *Can. Min.* **12**, 219–223 (1973).

Julgoldite-(Fe^{2+})	$Ca_2Fe^{2+}(Fe^{3+},Al)_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$
Okhotskite	$Ca_2(Mn^{2+},Mg)(Mn^{3+},Al,Fe^{3+})_2Si_3O_{10}(OH)_4$
Pumpellyite-(Fe^{2+})	$Ca_2Fe^{2+}Al_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$
Pumpellyite-(Fe^{3+})	$Ca_2(Fe^{3+},Mg,Fe^{2+})(AlFe^{3+})_2$-$(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$
Pumpellyite-(Mg)	$Ca_2MgAl_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$
Pumpellyite-(Mn^{2+})	$Ca_2(Mn^{2+},Mg)(Al,Mn^{3+},Fe)_2$-$(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$
Shuiskite	$Ca_2(Mg,Al)(Cr,Al)_2(SiO_4)(Si_2O_7)(OH)_2 \cdot H_2O$

Pyrite Group

Cubic sulfides, arsenides, etc., of general formula AXY or AX_2, A = Au, Co, Cu, Fe, Mn, Ni, Os, Pd, Pt, Ru; X and Y = As, Bi, S, Sb, Se, Te. Compare the Marcasite group.

Aurostibite	$AuSb_2$
Cattierite	CoS_2
Erlichmanite	OsS_2
Fukuchilite	$(Cu,Fe)S_2$
Geversite	$Pt(Sb,Bi)_2$
Hauerite	MnS_2
Insizwaite	$Pt(Bi,Sb)_2$
Krutaite	$CuSe_2$
Laurite	RuS_2
Maslovite	$(Pt,Pd)(Bi,Te)_2$
Michenerite	PdBiTe
Penroseite	$(Ni,Co,Cu)Se_2$
Pyrite	FeS_2
Sperrylite	$PtAs_2$
Testibiopalladite	Pd(Sb,Te)Te
Trogtalite	$CoSe_2$
Vaesite	NiS_2
Villamaninite	$(Cu,Ni,Co,Fe)S_2$

Pyrochlore Group

Cubic complex oxides of general formula $A_{1-2}B_2O_6(O,OH,F) \cdot nH_2O$; A = Ba, Bi, Ca, Ce, Cs, K, Na, Pb, Sb^{3+}, Sn, Sr, Th, U, Y, Zr; B = Fe, Nb, Sn, Ta, Ti, W. Pyrochlore subgroup has Nb > Ta, (Nb + Ta) > 2Ti; Microlite subgroup has Ta > Nb, (Ta + Nb) > 2Ti; Betafite subgroup has 2Ti > (Nb + Ta). Compare the closely related Stibiconite group.

Bariomicrolite	$Ba(Ta,Nb)_2(O,OH)_7$
Bariopyrochlore	$(Ba,Sr)_2(Nb,Ti)_2(O,OH)_7$
Betafite	$(Ca,Na,U)_2(Ti,Nb,Ta)_2O_6(OH)$
Bismutomicrolite	$(Bi,Ca)(Ta,Nb)_2O_6(OH)$

Calciobetafite	$Ca_2(Nb,Ti)_2(O,OH)_7$
Ceriopyrochlore-(Ce)	$(Ce,Ca,Y)_2(Nb,Ta)_2O_6(OH,F)$
Cesstibtantite	$(Cs,Na)Sb^{3+}Ta_4O_{12}$
Kalipyrochlore	$(K,Sr)_{2-x}Nb_2O_6(O,OH)\cdot nH_2O$
Microlite	$(Ca,Na)_2Ta_2O_6(O,OH,F)$
Natrobistantite	$(Na,Cs)Bi(Ta,Nb,Sb)_4O_{12}$
Plumbobetafite	$(Pb,U,Ca)(Ti,Nb)_2O_6(OH,F)$
Plumbomicrolite	$(Pb,Ca,U)_2Ta_2O_6(OH)$
Plumbopyrochlore	$(Pb,Y,U,Ca)_{2-x}Nb_2O_6(OH)$
Pyrochlore	$(Ca,Na)_2Nb_2O_6(OH,F)$
Stannomicrolite	$(Sn^{2+},Fe^{2+},Mn^{2+})_2(Ta,Nb,Sn^{4+})_2(O,OH)_7$
Stibiobetafite	$(Sb^{3+},Ca)_2(Ti,Nb,Ta)_2(O,OH)_7$
Stibiomicrolite	$(Sb,Ca,Na)_2(Ta,Nb)_2O_7$
Strontiopyrochlore	$Sr_2Nb_2(O,OH)_7$
Uranmicrolite	$(U,Ca,Ce)_2(Ta,Nb)_2O_6(OH,F)$
Uranpyrochlore	$(U,Ca,Ce)_2(Nb,Ta)_2O_6(OH,F)$
Yttrobetafite-(Y)	$(Y,U,Ce)_2(Ti,Nb,Ta)_2O_6(OH)$
Yttropyrochlore-(Y)	$(Y,Na,Ca,U)_{1-2}(Nb,Ta,Ti)_2(O,OH)_7$

Ferritungstite (cub.), Jixianite (cub.) and Zirkelite (mon.) are structurally related oxides; Ralstonite is an isostructural halide. The nomenclature of the group, with recommendations by the I.M.A. Commission on New Mineral and Mineral Names are given in **62**, 403–410 (1977).

Pyroxene Group

Orthorhombic or monoclinic silicates of general formula ABZ_2O_6, A = Ca, Fe^{2+}, Li, Mg, Mn^{2+}, Na, Zn; B = Al, Cr^{3+}, Fe^{2+}, Fe^{3+}, Mg, Mn^{2+}, Sc, Ti, V^{3+}; Z = Al, Si.

Aegirine	$NaFe^{3+}Si_2O_6$
Augite	$(Ca,Na)(Mg,Fe,Al,Ti)(Si,Al)_2O_6$
Clinoenstatite	$Mg_2Si_2O_6$
Clinoferrosilite	$(Fe^{2+},Mg)_2Si_2O_6$
Diopside	$CaMgSi_2O_6$
Donpeacorite	$(Mn^{2+},Mg)MgSi_2O_6$
Enstatite	$Mg_2Si_2O_6$
Esseneite	$CaFe^{3+}AlSiO_6$
Ferrosilite	$(Fe^{2+},Mg)_2Si_2O_6$
Hedenbergite	$CaFe^{2+}Si_2O_6$
Hypersthene	an intermediate member
Jadeite	$Na(Al,Fe^{3+})Si_2O_6$
Jervisite	$(Na,Ca,Fe^{2+})(Sc,Mg,Fe^{2+})Si_2O_6$
Johannsenite	$CaMn^{2+}Si_2O_6$
Kanoite	$(Mn^{2+},Mg)_2Si_2O_6$
Kosmochlor	$NaCr^{3+}Si_2O_6$

Namansilite	$NaMn^{3+}Si_2O_6$
Natalyite	$Na(V^{3+},Cr^{3+})Si_2O_6$
Omphacite	a clinopyroxene
Petedunnite	$Ca(Zn,Mn^{2+},Fe^{2+},Mg)Si_2O_6$
Pigeonite	$(Mg,Fe^{2+},Ca)(Mg,Fe^{2+})Si_2O_6$
Spodumene	$LiAlSi_2O_6$

The nomenclature of the group is in accord with the recommendations of the I.M.A. Commission on New Minerals and Mineral Names, **73**, 1123–1133 (1988).

Rhabdophane Group

Hexagonal or pseudo-hexagonal phosphates, with general formula $XZO_4 \cdot 1–2H_2O$, X = Ca, Ce, Fe^{3+}, La, Pb, Th; Z = P, S.

Brockite	$(Ca,Th,Ce)(PO_4)\cdot H_2O$
Grayite	$(Th,Pb,Ca)PO_4\cdot H_2O$
Ningyoite	$(U,Ca,Ce)_2(PO_4)_2\cdot 1–2H_2O$
Rhabdophane-(Ce)	$(Ce,La)PO_4\cdot H_2O$
Rhabdophane-(La)	$(La,Ce)PO_4\cdot H_2O$
Rhabdophane-(Nd)	$(Nd,Ce,La)PO_4\cdot H_2O$
Tristramite	$(Ca,U^{4+},Fe^{3+})(PO_4,SO_4)\cdot 2H_2O$

Rosasite Group

Monoclinic or triclinic carbonates of general formula $A_2(CO_3)(OH)_2$ or $AB(CO_3)(OH)_2$, A and B = Co, Cu, Mg, Ni, Zn.

Glaukosphaerite	$(Cu,Ni)_2(CO_3)(OH)_2$
Kolwezite	$(Cu^{2+},Co)_2(CO_3)(OH)_2$
Mcguinnessite	$(Mg,Cu^{2+})_2(CO_3)(OH)_2$
Nullaginite	$Ni_2(CO_3)(OH)_2$
Rosasite	$(Cu^{2+},Zn)_2(CO_3)(OH)_2$
Zincrosasite	$(Zn,Cu^{2+})_2(CO_3)(OH)_2$

Pokrovskite is a related mineral.

Roselite Group

Monoclinic arsenates of general formula $Ca_2M^{2+}(AsO_4)_2\cdot 2H_2O$, M^{2+} = Co, Mg, Mn, Zn.

Brandtite	$Ca_2(Mn^{2+},Mg)(AsO_4)_2\cdot 2H_2O$
Roselite	$Ca_2(Co^{2+},Mg)(AsO_4)_2\cdot 2H_2O$
Wendwilsonite	$Ca_2(Mg,Co)(AsO_4)_2\cdot 2H_2O$
Zincroselite	$Ca_2Zn(AsO_4)_2\cdot 2H_2O$

Rozenite Group

Monoclinic sulfates of general formula $A^{2+}SO_4 \cdot 4H_2O$, A^{2+} = Co, Fe, Mg, Mn, Ni, Zn.

Aplowite	$(Co,Mn^{2+},Ni)SO_4 \cdot 4H_2O$
Boyleite	$(Zn,Mg)SO_4 \cdot 4H_2O$
Ilesite	$(Mn^{2+},Zn,Fe^{2+})SO_4 \cdot 4H_2O$
Rozenite	$Fe^{2+}SO_4 \cdot 4H_2O$
Starkeyite	$MgSO_4 \cdot 4H_2O$

Rutile Group

Tetragonal oxides of general formula $M^{4+}O_2$, M^{4+} = Ge, Mn, Pb, Si, Sn, Te, Ti.

Argutite	GeO_2
Cassiterite	SnO_2
Paratellurite	TeO_2
Plattnerite	PbO_2
Pyrolusite	$Mn^{4+}O_2$
Rutile	TiO_2
Squawcreekite	$Fe^{3+}Sb^{5+}O_4$
Stishovite	SiO_2

Sellaite, MgF_2, is structurally related to the Rutile group.

Scapolite Group

The tetragonal silicate series $Na_4Al_3Si_9O_{24}Cl - Ca_4Al_6Si_6O_{24}(CO_3,SO_4)$.

Marialite	$3NaAlSi_3O_8 \cdot NaCl$
Meionite	$3CaAl_2Si_2O_8 \cdot CaCO_3$

Schoenfliesite Group

Cubic hydroxides of general formula $M^{2+}Sn^{4+}(OH)_6$, M^{2+} = Ca, Cu, Fe, Mg, Mn, Zn.

Burtite	$CaSn(OH)_6$
Mushistonite	$(Cu^{2+},Zn,Fe^{2+})Sn^{4+}(OH)_6$
Natanite	$Fe^{2+}Sn^{4+}(OH)_6$
Schoenfliesite	$MgSn^{4+}(OH)_6$
Vismirnovite	$ZnSn^{4+}(OH)_6$
Wickmanite	$Mn^{2+}Sn^{4+}(OH)_6$

Compare the Stottite group.

Smectite Group

Monoclinic silicates of general formula $X_{0.3}Y_{2-3}Z_4O_{10}(OH)_2 \cdot nH_2O$, X (exchangeable ions) = Ca/2, Li, Na; Y = Al, Cr^{3+}, Cu^{2+}, Fe^{2+}, Fe^{3+}, Li, Mg, Ni, Zn; Z = Al, Si.

Aliettite	a clay mineral
Beidellite	$(Na,Ca_{0.5})_{0.3}Al_2(Si,Al)_4O_{10}(OH)_2 \cdot nH_2O$
Hectorite	$Na_{0.3}(Mg,Li)_3Si_4O_{10}(F,OH)_2$
Montmorillonite	$(Na,Ca)_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot nH_2O$
Nontronite	$Na_{0.3}Fe_2^{3+}(Si,Al)_4O_{10}(OH)_2 \cdot nH_2O$
Saponite	$(Ca/2,Na)_{0.3}(Mg,Fe^{2+})_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$
Sauconite	$Na_{0.3}Zn_3(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$
Stevensite	$(Ca/2)_{0.3}Mg_3Si_4O_{10}(OH)_2$
Swinefordite	$(Ca,Na)_{0.3}(Li,Mg)_2(Si,Al)_4O_{10}(OH,F)_2 \cdot 2H_2O$
Volkonskoite	$Ca_{0.3}(Cr^{3+},Mg,Fe^{3+})_2(Si,Al)_4O_{10}(OH)_2 \cdot 4H_2O$
Yakhontovite	$(Ca,Na)_{0.5}(Cu^{2+},Fe^{2+},Mg)_2Si_4O_{10}(OH)_2 \cdot 3H_2O$

Compare Brammallite, Illite, Rectorite, Yakhontovite.

Sodalite Group

Cubic silicates of general formula $(Na,Ca)_{4-8}Al_6Si_6(O,S)_{24}$-$(SO_4,Cl,(OH),S)_{1-2},\cdot nH_2O$.

Hauyne	$(Na,Ca)_{4-8}Al_6Si_6(O,S)_{24}(SO_4,Cl)_{1-2}$
Lazurite	$(Na,Ca)_{7-8}(Al,Si)_{12}(O,S)_{24}[(SO_4),Cl_2,(OH)_2]$
Nosean	$Na_8Al_6Si_6O_{24}(SO_4) \cdot H_2O$
Sodalite	$Na_8Al_6Si_6O_{24}Cl_2$

Sphalerite Group

Cubic sulfides, selenides, and tellurides of general formula AX, A = Cd, Fe, Hg, Zn; X = S, Se, Te.

Coloradoite	HgTe
Hawleyite	CdS
Metacinnabar	HgS
Sphalerite	(Zn,Fe)S
Stilleite	ZnSe
Tiemannite	HgSe

Spinel Group

Cubic oxides of general formula AB_2O_4, A = Co, Cu, Fe^{2+}, Ge, Mg, Mn^{2+}, Ni, Ti, Zn; B = Al, Cr^{3+}, Fe^{2+}, Fe^{3+}, Mg, Mn^{3+}, Ti, V^{3+}.

Brunogeierite	$(Ge^{2+},Fe^{2+})Fe_2^{3+}O_4$
Chromite	$Fe^{2+}Cr_2O_4$
Cochromite	$(Co,Ni,Fe^{2+})(Cr,Al)_2O_4$
Coulsonite	$Fe^{2+}V_2^{3+}O_4$

Cuprospinel	$(Cu^{2+},Mg)Fe^{3+}_2O_4$
Franklinite	$(Zn,Mn^{2+},Fe^{2+})(Fe^{3+},Mn^{3+})_2O_4$
Gahnite	$ZnAl_2O_4$
Galaxite	$(Mn^{2+},Fe^{2+},Mg)(Al,Fe^{3+})_2O_4$
Hercynite	$Fe^{2+}Al_2O_4$
Jacobsite	$(Mn^{2+},Fe^{2+},Mg)(Fe^{3+},Mn^{3+})_2O_4$
Magnesiochromite	$MgCr_2O_4$
Magnesioferrite	$MgFe^{3+}_2O_4$
Magnetite	$Fe^{2+}Fe^{3+}_2O_4$
Manganochromite	$(Mn^{2+},Fe^{2+})(Cr^{3+},V^{3+})_2O_4$
Nichromite	$(Ni,Co,Fe^{2+})(Cr^{3+},Fe^{3+},Al)_2O_4$
Qandilite	$(Mg,Fe^{2+})_2(Ti,Fe^{2+},Al)O_4$
Spinel	$MgAl_2O_4$
Trevorite	$NiFe^{3+}_2O_4$
Ulvöspinel	$TiFe^{2+}_2O_4$
Vuorelainenite	$(Mn^{2+},Fe^{2+})(V^{3+},Cr^{3+})_2O_4$
Zincochromite	$ZnCr^{3+}_2O_4$

Ringwoodite is an isostructural silicate. Compare the sulfides of the Linnaeite group.

Stannite Group

Tetragonal sulfides and selenides of general formula A_2BX_4, A = Ag, Cd, Cu, Fe, Hg, Zn; B = As, Ge, In, Sb, Sn; X = S, Se.

Briartite	$Cu_2(Fe,Zn)GeS_4$
Cernyite	Cu_2CdSnS_4
Famatinite	Cu_3SbS_4
Hocartite	Ag_2FeSnS_4
Kuramite	Cu_3SnS_4
Luzonite	Cu_3AsS_4
Permingeatite	Cu_3SbSe_4
Pirquitasite	Ag_2ZnSnS_4
Stannite	Cu_2FeSnS_4
Velikite	$(Cu,Hg)_{11}Sn_4S_{16}$

Kesterite and Ferrokesterite are structurally related minerals.

Stibiconite Group

Cubic oxides of general formula $A_{1-2}B_2O_6(O,OH,F)$, A = Ag, Bi, Ca, Cu, Fe^{2+}, Fe^{3+}, K, Mn^{2+}, Na, Pb, Sb^{3+}; B = Fe^{3+}, Sb^{5+}, Ti. Compare with the Pyrochlore group.

Bindheimite	$Pb_2Sb_2O_6(O,OH)$
Bismutostibiconite	$Bi(Sb^{5+},Fe^{3+})_2O_7$
Lewisite	$(Ca,Fe^{2+},Na)_2(Sb,Ti)_2O_7$
Partzite	$Cu^{2+}_2Sb^{2+}(O,OH)_7$ (?)

Romeite	$(Ca,Fe^{2+},Mn^{2+},Na)_2(Sb,Ti)_2O_6(O,OH,F)$
Stetefeldtite	$Ag_2Sb_2(O,OH)_7$ (?)
Stibiconite	$Sb^{3+}Sb^{5+}_2O_6(OH)$

Jixianite is a structurally related lead tungsten oxide.

Stottite Group

Tetragonal hydroxides of general formula $AB(OH)_6$, A = Fe^{2+}, Fe^{3+}, Mn^{2+}, Na; B = Ge^{4+}, Sn^{4+}, Sb^{5+}.

Jeanbandyite	$(Fe^{3+},Mn^{2+})Sn^{4+}(OH)_6$
Mopungite	$NaSb^{5+}(OH)_6$
Stottite	$Fe^{2+}Ge^{4+}(OH)_6$
Tetrawickmanite	$Mn^{2+}Sn^{4+}(OH)_6$

Compare the cubic minerals of the Schoenfliesite group.

Tapiolite Group

See Ferrotapiolite group.

Tetradymite Group

Trigonal selenides and tellurides of general formula A_2X_3, A = Bi, Sb; X = S, Se, Te.

Kawazulite	Bi_2Te_2Se
Paraguanajuatite	$Bi_2(Se,S)_3$
Skippenite	Bi_2Se_2Te
Tellurantimony	Sb_2Te_3
Tellurobismuthite	Bi_2Te_3
Tetradymite	Bi_2Te_2S

Tetrahedrite Group

Cubic sulfides, selenides, and tellurides of general formula $A_{12}B_4X_{13}$, A = Ag, Cu, Fe, Hg, Zn; B = As, Sb, Te; X = S, Se, Te.

Argentotennantite	$(Ag,Cu)_8(Zn,Fe)_2(As,Sb)_4S_{13}$
Freibergite	$(Ag,Cu,Fe)_{12}(Sb,As)_4S_{13}$
Giraudite	$(Cu,Zn,Ag)_{12}(As,Sb)_4(Se,S)_{13}$
Goldfieldite	$Cu_{12}(Te,Sb,As)_4S_{13}$
Hakite	$(Cu,Hg,Ag)_{12}Sb_4(Se,S)_{13}$
Tennantite	$(Cu,Ag,Fe,Zn)_{12}As_4S_{13}$
Tetrahedrite	$(Cu,Fe,Ag,Zn)_{12}Sb_4S_{13}$

Tourmaline Group

Trigonal borosilicates of general formula $WX_3Y_6(BO_3)_3Si_6O_{18}(O,OH,F)_4$, W = Ca, K, Na; X = Al, Fe^{2+}, Fe^{3+}, Li, Mg, Mn^{2+}; Y = Al, Cr^{3+}, Fe^{3+}, V^{3+}.

Buergerite	$NaFe^{3+}_3Al_6(BO_3)_3Si_6O_{21}F$
Chromdravite	$NaMg_3(Cr,Fe^{3+})_6(BO_3)_3Si_6O_{18}(OH)_4$
Dravite	$NaMg_3Al_6(BO_3)_3Si_6O_{18}(OH)_4$
Elbaite	$Na(Li,Al)_3Al_6(BO_3)_3Si_6O_{18}(OH)_4$
Feruvite	$Ca(Fe^{2+},Mg)_3(Al,Mg)_6(BO_3)_3Si_6O_{18}(OH)_4$
Foitite	$\square[Fe^{2+}_2(Al,Fe^{3+})]Al_6Si_6O_{18}(BO_3)_3(OH)_4$
Liddicoatite	$Ca(Li,Al)_3Al_6(BO_3)_3Si_6O_{18}(O,OH,F)_4$
Olenite	$NaAl_3Al_6(BO_3)_3Si_6O_{18}(O,OH)_4$
Povondraite	$NaFe^{3+}_3Fe^{3+}_6(BO_3)_3(Si_6O_{18})(OH,O)_4$
Schorl	$NaFe^{2+}_3Al_6(BO_3)_3Si_6O_{18}(OH)_4$
Uvite	$(Ca,Na)(Mg,Fe^{2+})_3Al_5Mg(BO_3)_3Si_6O_{18}(OH,F)_4$

Turquoise Group

Triclinic phosphates of general formula $AB_6(PO_4)_xPO_3(OH)_{2-x}(OH)_8\cdot 4H_2O$, A = Ca, Cu^{2+}, Fe^{2+}, Zn; B = Al, Fe^{3+}, Cr^{2+}.

Aheylite	$(Fe^{2+},Zn)Al_6(PO_4)_4(OH)_8\cdot 4H_2O$
Chalcosiderite	$Cu^{2+}Fe^{3+}_6(PO_4)_4(OH)_8\cdot 4H_2O$
Coeruleolactite	$(Ca,Cu^{2+})Al_6(PO_4)_4(OH)_8\cdot 4–5H_2O$
Faustite	$(Zn,Cu^{2+})Al_6(PO_4)_4(OH)_8\cdot 4H_2O$
Planerite	$Al_6(PO_4)_2(PO_3OH)_2(OH)_8\cdot 4H_2O$
Turquoise	$Cu^{2+}Al_6(PO_4)_4(OH)_8\cdot 4H_2O$

Variscite Group

Orthorhombic arsenates and phosphates of general formula $AXO_4\cdot 2H_2O$, A = Al, Fe^{3+}, Cr^{3+}, In^{3+}; X = As, P.

Mansfieldite	$AlAsO_4\cdot 2H_2O$
Scorodite	$Fe^{3+}AsO_4\cdot 2H_2O$
Strengite	$Fe^{3+}PO_4\cdot 2H_2O$
Variscite	$AlPO_4\cdot 2H_2O$
Yanomamite	$InAsO_4\cdot 2H_2O$

Vivianite Group

Monoclinic arsenates and phosphates of general formula $A^{2+}_3(XO_4)_2\cdot 8H_2O$, A^{2+} = Co, Fe, Mg, Mn, Ni, Zn; X = As, P.

Annabergite	$Ni_3(AsO_4)_2\cdot 8H_2O$
Arupite	$Ni_3(PO_4)_2\cdot 8H_2O$
Baricite	$(Mg,Fe^{2+})_3(PO_4)_2\cdot 8H_2O$
Erythrite	$Co_3(AsO_4)_2\cdot 8H_2O$

Hörnesite	$Mg_3(AsO_4)_2 \cdot 8H_2O$
Köttigite	$Zn_3(AsO_4)_2 \cdot 8H_2O$
Parasymplesite	$Fe_3^{2+}(AsO_4)_2 \cdot 8H_2O$
Vivianite	$Fe_3^{2+}(PO_4)_2 \cdot 8H_2O$

Bobierrite and Manganese-hörnesite are related minerals, with b-axes twice those of minerals of this group.

Whiteite Group

Monoclinic phosphates of general formula $AB^{2+}CX_2(PO_4)_4(OH)_2 \cdot 8H_2O$, A = Ca, Mn^{2+}; B^{2+} = Mg, Mn, Fe, Zn; C = Mg, Fe^{2+}; X = Al, Fe^{3+}.

Jahnsite-(CaMnFe)	$CaMn^{2+}Fe_2^{3+}Fe_2^{3+}(PO_4)_4(OH)_2 \cdot 8H_2O$
Jahnsite-(CaMnMg)	$CaMn^{2+}(Mg,Fe^{2+})_2Fe_2^{2+}(PO_4)_4(OH)_2 \cdot 8H_2O$
Jahnsite-(CaMnMn)	$CaMn^{2+}Mn_2^{2+}Fe_2^{3+}(PO_4)_4(OH)_2 \cdot 8H_2O$
Keckite	$Ca(Mn^{2+},Zn)_2Fe_3^{3+}(PO_4)_4(OH)_3 \cdot 2H_2O$
Rittmanite	$(Mn^{2+},Ca)Mn^{2+}(Fe^{2+},Mn^{2+})_2(Al,Fe^{3+})_2(PO_4)_4(OH)_2 \cdot 8H_2O$
Whiteite-(CaFeMg)	$Ca(Fe^{2+},Mn^{2+})Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$
Whiteite-(CaMnMg)	$CaMn^{2+}Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$
Whiteite-(MnFeMg)	$(Mn^{2+},Ca)(Fe^{2+},Mn^{2+})Mg_2Al_2(PO_4)_4(OH)_2 \cdot 8H_2O$

Zeolite Group

Hydrous aluminosilicates characterized by ratio (Al + Si): O = 1 : 2 and by reversible loss of H_2O at low temperatures. The major cations are Na and Ca; less commonly Ba, Be, Li (?), K, Mg, and Sr.

Amicite	$K_2Na_2Al_4Si_4O_{16} \cdot 5H_2O$
Analcime (Analcite)	$NaAlSi_2O_6 \cdot H_2O$
Barrerite	$(Na,K,Ca)_2Al_2Si_7O_{18} \cdot 7H_2O$
Bellbergite	$(K,Ba,Sr)_2Sr_2Ca_2(Ca,Na)_4Al_{18}Si_{18}O_{72}$
Bikitaite (?)	$LiAlSi_2O_6 \cdot H_2O$
Boggsite	$Ca_8Na_3(Si,Al)_{96}O_{192} \cdot 70H_2O$
Brewsterite	$(Sr,Ba,Ca)Al_2Si_6O_{16} \cdot 5H_2O$
Chabazite	$CaAl_2Si_4O_{12} \cdot 6H_2O$
Clinoptilolite	$(Na,K,Ca)_{2-3}Al_3(Al,Si)_2Si_{13}O_{36} \cdot 12H_2O$
Cowlesite	$CaAl_2Si_3O_{10} \cdot 5\text{–}6H_2O$
Dachiardite	$(Ca,Na_2,K_2)_5Al_{10}Si_{38}O_{96} \cdot 25H_2O$
Edingtonite	$BaAl_2Si_3O_{10} \cdot 4H_2O$
Epistilbite	$CaAl_2Si_6O_{16} \cdot 5H_2O$
Erionite	$(K_2,Ca,Na_2)_2Al_4Si_{14}O_{36} \cdot 15H_2O$
Faujasite	$(Na_2,Ca)Al_2Si_4O_{12} \cdot 8H_2O$
Ferrierite	$(Na,K)_5Mg(Si,Al)_{18}O_{36}(OH) \cdot 9H_2O$
Garronite	$Na_2Ca_5Al_{12}Si_{20}O_{64} \cdot 27H_2O$
Gismondine	$Ca_2Al_4Si_4O_{16} \cdot 9H_2O$
Gmelinite	$(Na_2,Ca)Al_2Si_4O_{12} \cdot 6H_2O$

Gobbinsite	$Na_4(Ca,Mg,K_2)Al_6Si_{10}O_{32}\cdot 12H_2O$
Gonnardite	$Na_2CaAl_4Si_6O_{20}\cdot 7H_2O$
Goosecreekite	$CaAl_2Si_6O_{16}\cdot 5H_2O$
Harmotome	$(Ba,K)_{1-2}(Si,Al)_8O_{16}\cdot 6H_2O$
Herschelite	$(Na,Ca,K)AlSi_2O_6\cdot 3H_2O$
Heulandite	$(Na,Ca)_{2-3}Al_3(Al,Si)_2Si_{13}O_{36}\cdot 12H_2O$
Laumontite	$CaAl_2Si_4O_{12}\cdot 4H_2O$
Levyne	$(Ca,Na_2,K_2)Al_2Si_4O_{12}\cdot 6H_2O$
Maricopaite	$Pb_7Ca_2Al_{12}Si_{36}O_{100}\cdot 32H_2O$
Mazzite	$K_2CaMg_2(Al,Si)_{36}O_{72}\cdot 28H_2O$
Merlinoite	$(K,Ca,Na,Ba)_7Si_{23}Al_9O_{64}\cdot 23H_2O$
Mesolite	$Na_2Ca_2Al_6Si_9O_{30}\cdot 8H_2O$
Montesommaite	$(K,Na)_9Al_9Si_{23}O_{64}\cdot 10H_2O$
Mordenite	$(Ca,Na_2,K_2)Al_2Si_{10}O_{24}\cdot 7H_2O$
Natrolite	$Na_2Al_2Si_3O_{10}\cdot 2H_2O$
Offretite	$(K_2,Ca)_5Al_{10}Si_{26}O_{72}\cdot 30H_2O$
Paranatrolite	$Na_2Al_2Si_3O_{10}\cdot 3H_2O$
Paulingite	$(K,Na)_2Ca(Si_{13}Al_4)O_{34}\cdot 13H_2O$ (?)
Perlialite	$K_9Na(Ca,Sr)Al_{12}Si_{24}O_{72}\cdot 15H_2O$
Phillipsite	$(K,Na,Ca)_{1-2}(Si,Al)_8O_{16}\cdot 6H_2O$
Pollucite	$(Cs,Na)_2Al_2Si_4O_{12}\cdot H_2O$
Scolecite	$CaAl_2Si_3O_{10}\cdot 3H_2O$
Sodium dachiardite	$(Na_2,Ca,K_2)_{4-5}Al_8Si_{40}O_{96}\cdot 26H_2O$
Stellerite	$CaAl_2Si_7O_{18}\cdot 7H_2O$
Stilbite	$NaCa_2Al_5Si_{13}O_{36}\cdot 14H_2O$
Tetranatrolite	$Na_2Al_2Si_3O_{10}\cdot 2H_2O$
Thomsonite	$NaCa_2Al_5Si_5O_{20}\cdot 6H_2O$
Tschernichite	$(Ca,Na)(Si_6Al_6)O_{16}\cdot 4–8H_2O$
Wairakite	$CaAl_2Si_4O_{12}\cdot 2H_2O$
Wellsite	$(Ba,Ca,K_2)Al_2Si_6O_{16}\cdot 6H_2O$
Willhendersonite	$KCaAl_3Si_3O_{12}\cdot 5H_2O$
Yugawaralite	$CaAl_2Si_6O_{16}\cdot 4H_2O$

Partheite and Roggianite are related minerals.

Appendix

John S. White, Jr.

In order to make the *Glossary of Mineral Species* more useful to collectors who may need word expressions of chemical formulas, this Appendix has been added. The minerals in the Appendix are believed to include those most familiar to mineral collectors.

Establishing inflexible rules for writing word-formulas proved impossible as simplicity, custom, and convenience dictated the inclusion of certain inconsistencies. For example, the term "aluminosilicate" is used wherever the chemical formula indicates (Al,Si), as for example in the zeolites and feldspars. Intermediate members of solid solution series are not included, except in the case of plagioclase feldspars. The word-formulas include only essential constituents (i.e., if the species were "ideally" pure), even where the chemical formulas indicate the presence of additional elements.

Certain groups of tightly bonded atoms are treated as discrete units and these units are given names, such as CO_3^{2-} (carbonate), SO_4^{2-} (sulfate), PO_4^{3-} (phosphate), UO_2^{2+} (uranyl) and SiO_4^{4-} (silicate).

Word-formulas are not given for all the minerals in the glossary: it should be a simple matter to write any formula in word form, however, using the included examples as a guide.

Acanthite	silver sulfide
Actinolite	calcium magnesium iron silicate hydroxide
Adamite	zinc arsenate hydroxide
Albite	sodium aluminosilicate
Allanite	rare earth calcium aluminum iron silicate hydroxide
Allemontite	alloy of arsenic and antimony
Almandine	iron aluminum silicate
Alunite	potassium aluminum sulfate hydroxide
Amblygonite	lithium aluminum phosphate fluoride hydroxide
Analcime	sodium aluminum silicate hydrate
Anapaite	calcium iron phosphate hydrate
Anatase	titanium oxide
Andalusite	aluminum silicate
Andesine	sodium calcium aluminosilicate
Andradite	calcium iron silicate
Anglesite	lead sulfate
Anhydrite	calcium sulfate
Ankerite	calcium iron magnesium carbonate
Anorthite	calcium aluminosilicate
Anthophyllite	magnesium iron silicate hydroxide

Antlerite	copper sulfate hydroxide
Aragonite	calcium carbonate
Arsenopyrite	iron arsenic sulfide
Artinite	magnesium carbonate hydroxide hydrate
Atacamite	copper chloride hydroxide
Augite	calcium magnesium iron aluminum silicate
Aurichalcite	zinc copper carbonate hydroxide
Austinite	calcium zinc arsenate hydroxide
Autunite	calcium uranyl phosphate hydrate
Axinite	calcium manganese iron aluminum borosilicate
Azurite	copper carbonate hydroxide
Babingtonite	calcium iron silicate hydroxide
Barite	barium sulfate
Barytocalcite	barium calcium carbonate
Bavenite	calcium beryllium aluminum silicate hydroxide
Bayldonite	lead copper arsenate hydroxide
Becquerelite	calcium uranium oxide hydrate
Benitoite	barium titanium silicate
Benstonite	calcium magnesium barium carbonate
Beraunite	iron phosphate hydroxide hydrate
Berthierite	iron antimony sulfide
Bertrandite	beryllium silicate hydroxide
Beryl	beryllium aluminum silicate
Beryllonite	sodium beryllium phosphate
Beta-roselite	calcium cobalt arsenate hydrate
Beta-uranophane	calcium uranyl silicate hydrate
Beudantite	lead iron arsenate sulfate hydroxide
Bikitaite	lithium aluminosilicate hydrate
Biotite	potassium magnesium iron aluminosilicate hydroxide
Bismuth	bismuth
Bismuthinite	bismuth sulfide
Bixbyite	manganese oxide
Blödite	sodium magnesium sulfate hydrate
Boleite	lead copper silver chloride hydroxide hydrate
Boracite	magnesium borate chloride
Borax	sodium borate hydrate
Bornite	copper iron sulfide
Boulangerite	lead antimony sulfide
Brazilianite	sodium aluminum phosphate hydroxide
Brewsterite	strontium barium aluminosilicate hydrate
Brochantite	copper sulfate hydroxide
Bromargyrite	silver bromide
Brookite	titanium oxide
Brucite	magnesium hydroxide

Buergerite	sodium iron aluminum borosilicate fluoride
Cacoxenite	iron phosphate hydroxide hydrate
Calaverite	gold telluride
Calcite	calcium carbonate
Caledonite	lead copper carbonate sulfate hydroxide
Carnotite	potassium uranyl vanadate hydrate
Cassiterite	tin oxide
Catapleiite	sodium zirconium silicate hydrate
Celestine	strontium sulfate
Cerussite	lead carbonate
Chalcocite	copper sulfide
Chalcopyrite	copper iron sulfide
Chloritoid	iron aluminum silicate hydroxide
Chondrodite	magnesium silicate hydroxide fluoride
Chromite	iron chromium oxide
Chrysoberyl	beryllium aluminum oxide
Chrysocolla	copper silicate hydroxide
Cinnabar	mercury sulfide
Clinochlore	magnesium aluminosilicate hydroxide
Clinoclase	copper arsenate hydroxide
Clinozoisite	calcium aluminum silicate hydroxide
Cobaltite	cobalt arsenic sulfide
Colemanite	calcium borate hydrate
Columbite	iron niobium oxide
Conichalcite	calcium copper arsenate hydroxide
Copper	copper
Corundum	aluminum oxide
Covellite	copper sulfide
Creedite	calcium aluminum sulfate fluoride hydroxide hydrate
Cristobalite	silicon oxide
Crocoite	lead chromate
Cuprite	copper oxide
Cuprosklodowskite	copper uranyl silicate hydrate
Cyanotrichite	copper aluminum sulfate hydroxide hydrate
Danburite	calcium borosilicate
Datolite	calcium borosilicate hydroxide
Descloizite	lead zinc vanadate hydroxide
Diaboleite	lead copper chloride hydroxide
Diamond	carbon
Diopside	calcium magnesium silicate
Dioptase	copper silicate hydroxide
Dolomite	calcium magnesium carbonate
Dravite	sodium magnesium aluminum borosilicate hydroxide
Elbaite	sodium lithium aluminum borosilicate hydroxide

Enargite	copper arsenic sulfide
Eosphorite	manganese aluminum phosphate hydroxide hydrate
Epidote	calcium aluminum iron silicate hydroxide
Epistilbite	calcium aluminosilicate hydrate
Erythrite	cobalt arsenate hydrate
Euclase	beryllium aluminosilicate hydroxide
Fayalite	iron silicate
Ferberite	iron tungstate
Fergusonite	yttrium niobium oxide
Fluorapatite	calcium phosphate fluoride
Fluorite	calcium fluoride
Forsterite	magnesium silicate
Francevillite	barium lead uranyl vanadate hydrate
Franklinite	zinc manganese iron oxide
Gadolinite	beryllium iron yttrium silicate
Gahnite	zinc aluminum oxide
Galena	lead sulfide
Glauberite	sodium calcium sulfate
Goethite	iron oxide hydroxide
Gold	gold
Grossular	calcium aluminum silicate
Gypsum	calcium sulfate hydrate
Halite	sodium chloride
Hambergite	beryllium borate hydroxide
Hematite	iron oxide
Hemimorphite	zinc silicate hydroxide hydrate
Hessite	silver telluride
Heulandite	calcium sodium aluminosilicate hydrate
Hopeite	zinc phosphate hydrate
Howlite	calcium borosilicate hydroxide
Hübnerite	manganese tungstate
Humite	magnesium silicate fluoride hydroxide
Hureaulite	manganese phosphate hydrate
Hydroxyl-apatite	calcium phosphate hydroxide
Hydrozincite	zinc carbonate hydroxide
Ilmenite	iron titanium oxide
Ilvaite	calcium iron silicate hydroxide
Jamesonite	lead iron antimony sulfide
Jarosite	potassium iron sulfate hydroxide
Jordanite	lead thallium arsenic sulfide
Kasolite	lead uranyl silicate hydrate
Kermesite	antimony sulfur oxide
Kernite	sodium borate hydrate
Laumontite	calcium aluminosilicate hydrate

Lawsonite	calcium aluminum silicate hydroxide hydrate
Lazulite	magnesium iron aluminum phosphate hydroxide
Lazurite	sodium calcium aluminosilicate sulfate
Leadhillite	lead sulfate carbonate hydroxide
Legrandite	zinc arsenate hydroxide hydrate
Lepidolite	potassium lithium aluminosilicate fluoride hydroxide
Leucite	potassium aluminosilicate
Libethenite	copper phosphate hydroxide
Linarite	lead copper sulfate hydroxide
Liroconite	copper aluminum arsenate hydroxide hydrate
Ludlamite	iron phosphate hydrate
Magnesite	magnesium carbonate
Magnetite	iron oxide
Malachite	copper carbonate hydroxide
Manganite	manganese oxide hydroxide
Marcasite	iron sulfide
Meta-autunite	calcium uranyl phosphate hydrate
Metatorbernite	copper uranyl phosphate hydrate
Microcline	potassium aluminosilicate
Microlite	calcium sodium tantalum oxide hydroxide fluoride
Milarite	potassium calcium beryllium aluminum silicate hydrate
Millerite	nickel sulfide
Mimetite	lead arsenate chloride
Molybdenite	molybdenum sulfide
Mottramite	lead copper zinc vanadate hydroxide
Murdochite	lead copper oxide
Muscovite	potassium aluminosilicate hydroxide
Nagyagite	lead gold telluride sulfide
Neptunite	sodium potassium iron titanium silicate
Nickeline	nickel arsenide
Olivenite	copper arsenate hydroxide
Opal	silicon oxide hydrate
Orpiment	arsenic sulfide
Orthoclase	potassium aluminosilicate
Perovskite	calcium titanium oxide
Petzite	silver gold telluride
Phenakite	beryllium silicate
Phillipsite	potassium calcium aluminosilicate hydrate
Phlogopite	potassium magnesium aluminosilicate hydroxide
Phosgenite	lead carbonate chloride
Phosphophyllite	zinc iron phosphate hydrate
Polybasite	silver copper antimony sulfide
Powellite	calcium molybdate
Prehnite	calcium aluminosilicate hydroxide

Proustite	silver arsenic sulfide
Pseudomalachite	copper phosphate hydroxide hydrate
Pyrargyrite	silver antimony sulfide
Pyrite	iron sulfide
Pyrolusite	manganese oxide
Pyromorphite	lead phosphate chloride
Pyrope	magnesium aluminum silicate
Pyrophyllite	aluminum silicate hydroxide
Pyrrhotite	iron sulfide
Quartz	silicon oxide
Realgar	arsenic sulfide
Rhodochrosite	manganese carbonate
Rhodonite	manganese silicate
Rosasite	copper zinc carbonate hydroxide
Roscherite	calcium manganese beryllium phosphate hydroxide hydrate
Roselite	calcium cobalt arsenate hydrate
Rutile	titanium oxide
Scheelite	calcium tungstate
Schorl	sodium iron aluminum borosilicate hydroxide
Scolecite	calcium aluminosilicate hydrate
Scorodite	iron arsenate hydrate
Serandite	sodium manganese calcium silicate hydroxide
Shattuckite	copper silicate hydroxide
Siderite	iron carbonate
Siegenite	cobalt nickel sulfide
Skutterudite	cobalt nickel arsenide
Smithsonite	zinc carbonate
Sodalite	sodium aluminum silicate chloride
Sperrylite	platinum arsenide
Spessartine	manganese aluminum silicate
Sphalerite	zinc sulfide
Spinel	magnesium aluminum oxide
Spodumene	lithium aluminosilicate
Stibnite	antimony sulfide
Strontianite	strontium carbonate
Sulfur	sulfur
Sylvite	potassium chloride
Tennantite	copper arsenic sulfide
Tetrahedrite	copper antimony sulfide
Thenardite	sodium sulfate
Thomsonite	sodium calcium aluminosilicate hydrate
Tincalconite	sodium borate hydrate
Titanite	calcium titanium silicate

Topaz	aluminum silicate fluoride hydroxide
Torbernite	copper uranyl phosphate hydrate
Tremolite	calcium magnesium silicate hydroxide
Turquoise	copper aluminum phosphate hydroxide hydrate
Tyrolite	copper calcium arsenate carbonate hydroxide hydrate
Tyuyamunite	calcium uranyl vanadate hydrate
Ulexite	sodium calcium borate hydrate
Uranophane	calcium uranyl silicate hydrate
Uvarovite	calcium chromium silicate
Vanadinite	lead vanadate chloride
Variscite	aluminum phosphate hydrate
Vesuvianite	calcium magnesium aluminosilicate hydroxide
Vivianite	iron phosphate hydrate
Wardite	sodium aluminum phosphate hydroxide hydrate
Wavellite	aluminum phosphate hydroxide hydrate
Weloganite	strontium sodium zirconium carbonate hydrate
Willemite	zinc silicate
Witherite	barium carbonate
Wulfenite	lead molybdate
Wurtzite	zinc sulfide
Zeunerite	copper uranyl arsenate hydrate
Zincite	zinc oxide
Zircon	zirconium silicate
Zoisite	calcium aluminium silicate hydroxide