major NON-SILICATE mineral groups

Gold group

^{XII}M (CCP metals [isometric])

Au
Ag
Cu

Platinum group

^{XII}M (CCP metals; compare with the HCP osmium group [isometric])

Pt
Pd
Rh
Ir

Osmium group

^{XII}M (HCP metals; compare with the CCP platinum group [hexagonal])

Os
Ru
Re

Chalcocite group

$^{III-IV}(Cu)_{2-x}S$

$Cu_{2.00}S$
$Cu_{1.97}S$
$Cu_{1.80}S$
$Cu_{1.78}S$
$Cu_{1.75}S$
$Cu_{1.60}S$
$Cu_{1.40}S$

Pentlandite group

$^{VI}(M)^{IV}(M)_8{}^{IV-V}S_9$ (CCP packing of S atoms with two metal sites [isometric])

$Fe(Fe,Ni)_8S_9$
$Ag(Fe,Ni)_8S_9$
$CoCo_8S_9$

Galena group

$^{VI}(M)^{VI}S$ ("NaCl" structure [isometric])

PbS
PbSe
PbTe
MnS
CaS
MnS

Sphalerite group

$^{IV}(M)^{IV}S$ (modified "diamond" structure: "Zn" and "S" replace C atoms alternately [isometric])

ZnS (multiple polymorphs; one belongs to the sphalerite group)
ZnSe
HgS (multiple polymorphs; one belongs to the sphalerite group)
HgSe
HgTe
CdS (multiple polymorphs; one belongs to the sphalerite group)

Chalcopyrite group

$^{IV}(M)^{IV}(M)^{IV}S_2$ (derivative of the "sphalerite" structure: Cu and "Fe" replace Zn atoms alternately, and Cu and Fe atom positions are interchanged from one half-unit cell to the next along *c* [tetragonal])

$Cu^{+}Fe^{3+}S_2$
$Cu^{+}Fe^{3+}Se_2$
$Cu^{+}Ga^{3+}S_2$
$Cu^{+}In^{3+}S_2$

Stannite group minerals are structurally equivalent to the chalcopyrite group

Thiospinel group

$^{IV}(M)^{VI}(M)_2S_4$ (equivalent to the oxide spinels [isometric])

$Co^{2+}Co^{3+}{}_2S_4$
$Cu^{2+}Co^{3+}{}_2S_4$
$Cu^{2+}Ni^{3+}{}_2S_4$
$Cu^{2+}Co^{3+}{}_2Se_4$ (Ni^{3+} may replace Co^{3+})
$Co^{2+}Co^{3+}{}_2Se_4$
$Ni^{2+}Co^{3+}{}_2S_4$ (Co^{2+} may replace Ni^{2+}; Ni^{3+} may replace Co^{3+})
$Ni^{2+}Ni^{3+}{}_2S_4$
$Ni^{2+}Ni^{3+}{}_2Se_4$
$Fe^{2+}Ni^{3+}{}_2S_4$
$Fe^{2+}Fe^{3+}{}_2S_4$
$Fe^{2+}Cr^{3+}{}_2S_4$
$Fe^{2+}In^{3+}{}_2S_4$
$ZnCr^{3+}{}_2S_4$
$Cu^{2+}Cr^{3+}{}_2S_4$ (Sb^{3+} may replace Cr^{3+})
$Cu^{2+}Ir^{3+}{}_2S_4$
$Cu^{2+}Rh^{3+}{}_2S_4$
$Cu^{2+}[Pt^{3+}Ir^{3+}]S_4$

Pyrite group

$^{VI}(M)^{VI}(X_2)$ (modified "NaCl" structure [isometric; X-X dimers oriented parallel to the cube diagonals]; note compositional similarity to marcasite group)

FeS_2 (two polymorphs... one belongs to pyrite group)
NiS_2
CoS_2
$NiSe_2$ (two polymorphs... one belongs to pyrite group)
$CoSe_2$ (two polymorphs... one belongs to pyrite group)
CuS_2
$CuSe_2$
MnS_2
RuS_2

$AuSb_2$
$NiAs_2$ (two polymorphs... one belongs to pyrite group)
$PtAs_2$
$PtSb_2$
$PtBi_2$
OsS_2
$FeSe_2$ (two polymorphs... one belongs to pyrite group)
$Ir_{1-x}Te_2$
IrBiTe

Cobaltite group minerals are structurally-derived from the pyrite group: X-X pairs are made up of two dissimilar atoms (isometric or pseudo-isometric)

Marcasite group

$^{VI}(M)^{VI}(X_2)$ (note compositional similarity to pyrite group; [orthorhombic; X-X dimers oriented parallel to *a*-*b* plane)

FeS_2 (two polymorphs... one belongs to marcasite group)
$NiSe_2$ (two polymorphs... one belongs to marcasite group)
$CoSe_2$ (two polymorphs... one belongs to marcasite group)
$CoTe_2$
$RuAs_2$
$NiAs_2$ (two polymorphs... one belongs to marcasite group)
$FeSe_2$ (two polymorphs... one belongs to marcasite group)
$FeTe_2$
$OsAs_2$
$FeAs_2$
$FeSb_2$
$CoAs_2$
$NiSb_2$

Arsenopyrite group minerals are structurally-derived from the marcasite group: X-X pairs are made up of two dissimilar atoms (monoclinic [pseudo-orthorhombic])

Periclase group

$^{VI}(M)^{VI}O$ ("NaCl" structure [isometric])

MgO
NiO
MnO
CdO
CaO
$Fe^{2+}O$ (may be slightly non-stoichiometric due to the exchange $[3Fe^{2+}] = [2Fe^{3+}+\square]$)

Corundum-hematite group

$^{VI}(M_2)O_3$ (oxygen arranged in HCP; ^{VI}M cations populate 2 out of every 3 sites; note similarity to ilmenite group)

Al_2O_3
$Fe^{3+}{}_2O_3$
$Cr^{3+}{}_2O_3$
$V^{3+}{}_2O_3$

Ilmenite group

$^{VI}(M)^{VI}(M)O_3$ (oxygen arranged in HCP; the two dissimilar ^{VI}M cations populate 2 out of every 3 sites; note similarity to corundum-hematite group)

$(Fe^{2+}Ti)O_3$
$(Mn^{2+}Ti)O_3$
$(MgTi)O_3$
$(ZnTi)O_3$
$(NaSb^{5+})O_3$
$(Mn[Sb^{5+}_{0.5}Fe^{3+}_{0.5}])O_3$

Perovskite group

$^{XII}(A)^{VI}(M)^{VI}O_3$ (in the idealized perovskite structure, the ^{XII}A+O atoms are arranged in CCP; possible twisting or buckling of the ^{VI}M octahedra [due to the size of the ^{XII}A cation] results in a lower symmetry in many natural perovskites)

$CaTiO_3$
$NaNbO_3$ (two polymorphs... both belong to the perovskite group)
$NaCeTi_2O_6$
$SrTiO_3$
$BaTiO_3$
$PbTiO_3$
$CaSnO_3$
$MgSiO_3$ (only a high pressure phase, from ~660 km to ~2700 km in the lower mantle; other polymorphs at shallower depths)

Rutile group

$^{VI}(M)^{III}O_2$

TiO_2 (three polymorphs... one belongs to the rutile group)
$Mn^{4+}O_2$
$Pb^{4+}O_2$
SnO_2
GeO_2
SiO_2 (multiple polymorphs... stishovite, *not quartz*, is the member of the rutile group)

Uraninite group

$^{VIII}(M)^{IV}O_2$ (equivalent to fluorite [isometric])

$U^{4+}O_2$
$Th^{4+}O_2$

Diaspore group

α-^{VI}(M)O(OH) (oxygen arranged in HCP)

α-AlO(OH)
α-Cr^{3+}O(OH)
α-Fe^{3+}O(OH)
α-Mn^{3+}O(OH)
α-V^{3+}O(OH)
α-GaO(OH)

Lepidocrocite group minerals [γ-^{VI}(M)O(OH)] are chemically similar to the diaspore group but are based on oxygen arranged in CCP

Brucite group

^{VI}(M)(OH)$_2$ (oxygen arranged in HCP; the "brucite" structural unit is an important component of sheet silicates, notably serpentine, talc, biotite, and chlorite)

$Mg(OH)_2$
$Fe^{2+}(OH)_2$
$Mn^{2+}(OH)_2$
$Ca(OH)_2$
$Ni^{2+}(OH)_2$

Gibbsite is related, but like corundum, only 2 of 3 octahedral sites are occupied. Due to stacking mismatch between the layers, gibbsite is monoclinic rather than hexagonal. Like the "brucite" structural unit, the "gibbsite" structural unit is also an important component of sheet silicates, notably in kaolinite, pyrophyllite, muscovite and chlorite.

Spinel group

^{IV}(M)^{VI}(M)$_2$O$_4$ (oxygen arranged in ~CCP; "normal" spinels are $^{IV}(M^{2+})^{VI}(M^{3+})_2O_4$ and "inverse" spinels are $^{IV}(M^{3+})^{VI}(M^{3+}M^{2+})O_4$, determined in part by crystal field effects... some of the more well-known "normal" and "inverse" spinels are identified)

$MgAl_2O_4$ ("normal")
$Mn^{2+}Al_2O_4$ ("normal")
$Fe^{2+}Al_2O_4$ ("normal")
$ZnAl_2O_4$ ("normal")
$MgFe^{3+}{}_2O_4$ ("inverse")
$Mn^{2+}Fe^{3+}{}_2O_4$ (two polymorphs... one belongs to the spinel group)
$Fe^{2+}Fe^{3+}{}_2O_4$ ("inverse")
$ZnFe^{3+}{}_2O_4$ ("normal")
$Ni^{2+}Fe^{3+}{}_2O_4$ ("inverse")
$Cu^{2+}Fe^{3+}{}_2O_4$ ("inverse")
$Ge^{2+}Fe^{3+}{}_2O_4$
$MgCr^{3+}{}_2O_4$ ("normal")
$Mn^{2+}Cr^{3+}{}_2O_4$ ("normal")
$Fe^{2+}Cr^{3+}{}_2O_4$ ("normal")
$Ni^{2+}Cr^{3+}{}_2O_4$ ("normal")
$Co^{2+}Cr^{3+}{}_2O_4$
$ZnCr^{3+}{}_2O_4$ ("normal")
$MgV^{3+}{}_2O_4$
$Mn^{2+}V^{3+}{}_2O_4$
$Fe^{2+}V^{3+}{}_2O_4$
$TiMg_2O_4$ ("inverse")
$TiFe^{2+}{}_2O_4$ ("inverse")
$Fe^{3+}(Fe^{3+}{}_{1.67}\square_{0.33})O_4$ ("inverse"; note compositional similarity to hematite)
$SiMg_2O_4$ (only a high pressure phase, from ~520 km to ~660 km in the lower mantle; other polymorphs at shallower and deeper depths; note compositional similarity to olivine)

Calcite group

^{VI}(M)CO_3 (note similarity to aragonite group)

$CaCO_3$ (three polymorphs... one in the calcite group)
$MgCO_3$
$Fe^{2+}CO_3$
$Mn^{2+}CO_3$
$ZnCO_3$

$CdCO_3$
$Co^{2+}CO_3$
$Ni^{2+}CO_3$

Aragonite group

$^{IX}(M)CO_3$ (note similarity to calcite group)

$CaCO_3$ (three polymorphs... one in the aragonite group)
$SrCO_3$
$BaCO_3$
$PbCO_3$

Dolomite group

$^{VI}(M)^{VI}(M)(CO_3)_2$ (note similarity to calcite group)

$CaMg(CO_3)_2$
$CaFe^{2+}(CO_3)_2$
$CaMn^{2+}(CO_3)_2$
$CaZn(CO_3)_2$

Barite group

$^{XII}(M)^{IV}TO_4$ (where ^{VI}T is typically S^{6+})

$BaSO_4$
$SrSO_4$
$PbSO_4$
$BaCr^{6+}O_4$
$Pb_2(SO_4)(SeO_4)$
$Pb_3(SO_4)_2[GeO_2(OH)_2]$
KBF_4 (significant K may be replaced by Cs)

$CaSO_4$ (compositionally similar but structurally distinct from the barite group)

Alunite-jarosite group

$^{VI}(M)^{VI}(M)_3(^{IV}TO_4)_2(OH)_6$ (where ^{VI}T is typically S^{6+} or P^{5+}; when a 5+ ion occupies ^{IV}T, OH may be replaced by H_2O)

$KAl_3(SO_4)_2(OH)_6$
$(NH_4)Al_3(SO_4)_2(OH)_6$
$(Ca_{0.5}\square_{0.5})Al_3(SO_4)_2(OH)_6$
$(Na_{0.33}Ca_{0.33}\square_{0.33})Al_3(SO_4)_2(OH)_6$
$NaAl_3(SO_4)_2(OH)_6$
$Pb^{2+}(Cu^{2+}Al_2)(SO_4)_2(OH)_6$
$(H_3O^+_{0.33}Ca_{0.67})Al_3[(SO_4)_{1.33}(AsO_4)_{0.67}](OH)_6$
$(Ba_{0.5}\square_{0.5})Al_3(SO_4)_2(OH)_6$
$PbAl_3(AsO_4)_2[(OH)_5(H_2O)]$
$PbAl_3(PO_4)_2[(OH)_5(H_2O)]$
$SrAl_3(AsO_4)_2[(OH)_5(H_2O)]$
$SrAl_3(PO_4)_2[(OH)_5(H_2O)]$
$CaAl_3(PO_4)_2[(OH)_5(H_2O)]$
$CaAl_3(AsO_4)_2[(OH)_5(H_2O)]$
$BaAl_3(AsO_4)_2[(OH)_5(H_2O)]$
$SrAl_3(AsO_4)_2[(OH)_5(H_2O)]$
$(H_3O^+_{0.5}Th_{0.5})Al_3[(PO_4)_{1.33}(SiO_4)_{0.67}][(OH)_{4.83}(H_2O)_{1.27}]$
$BaAl_3(PO_4)_2[(OH)_5(H_2O)]$

$PbAl_3[(PO_4)(SO_4)](OH)_6$
$(LREE)Al_3(PO_4)_2(OH)_6$ (several species where the dominant LREE differs are known)
$(LREE)Al_3(AsO_4)_2(OH)_6$ (several species where the dominant LREE differs are known)
$Bi^{3+}Al_3(PO_4)_2(OH)_6$
$KFe^{3+}_3(SO_4)_2(OH)_6$
$(NH_4)Fe^{3+}_3(SO_4)_2(OH)_6$
$NaFe^{3+}_3(SO_4)_2(OH)_6$
$(H_3O^+)Fe^{3+}_3(SO_4)_2(OH)_6$
$Tl^+Fe^{3+}_3(SO_4)_2(OH)_6$
$AgFe^{3+}_3(SO_4)_2(OH)_6$
$Pb^{2+}(Cu^{2+}Fe^{3+}_2)(SO_4)_2(OH)_6$
$(Pb_{0.5}\square_{0.5})Fe^{3+}_3(SO_4)_2(OH)_6$
$PbFe^{3+}_3(AsO_4)_2[(OH)_5(H_2O)]$
$PbFe^{3+}_3(PO_4)_2[(OH)_5(H_2O)]$
$PbGa_3[(AsO_4)(SO_4)](OH)_6$
$(LREE)Fe^{3+}_3(AsO_4)_2(OH)_6$ (currently only the Ce^{3+} species is recognized)
$SrFe^{3+}_3(PO_4)_2[(OH)_5(H_2O)]$
$BaFe^{3+}_3(AsO_4)_2[(OH)_5(H_2O)]$
$BaV^{3+}_3(PO_4)_2[(OH)_5(H_2O)]$
$Bi^{3+}Fe^{3+}_3(PO_4)_2[(OH)_5(H_2O)]$
+ additional combinations

Monazite group

$^{IX}(M)^{IV}TO_4$ (where ^{VI}T is typically P^{5+})

$(LREE^{3+})PO_4$ (currently only the La^{3+}, Ce^{3+}, Nd^{3+} and Sm^{3+} species are recognized)
$(Ca_{0.5}Th^{4+}_{0.5})PO_4$ (U^{4+} may replace some Th^{4+})
$(LREE^{3+})AsO_4$ (currently only the Ce^{3+} species is recognized)
$Th^{4+}[\mathbf{SiO_4}]$ (two polymorphs... one belongs to monazite group; one belongs to zircon group)
$Bi^{3+}AsO_4$

The following six minerals are chemically similar to but structurally distinct from the monazite group; they belong to the zircon group
$Y^{3+}PO_4$ ($HREE^{3+}$ may replace Y)
$Yb^{3+}PO_4$ (other $HREE^{3+}$ may replace Yb)
$Y^{3+}AsO_4$ ($HREE^{3+}$ may replace Y)
$Y^{3+}VO_4$ ($HREE^{3+}$ may replace Y)
$Ce^{3+}VO_4$ (other $LREE^{3+}$ may replace Ce)
$Bi^{3+}VO_4$

Apatite group

$^{VI}(M)_3{}^{VI}(M)_2(^{IV}TO_4)_3X$ (hexagonal unless otherwise noted; minor Mn^{2+} may replace Ca; limited SiO_4^{4-}, SO_4^{2-}, CO_3^{2-}, may replace PO_4^{3-})

$Ca_3Ca_2(PO_4)_3F$
$Ca_3Ca_2(PO_4)_3Cl$
$Ca_3Ca_2(PO_4)_3OH$ (both hexagonal and monoclinic structures are known)
$Ba_3Ba_2(PO_4)_3Cl$
$Sr_3Ca_2(PO_4)_3OH$
$Sr_3(Na[LREE^{3+}])(PO_4)_3F$ (currently only the La^{3+} and Ce^{3+} species are recognized; both are trigonal)
$Pb_3Pb_2(AsO_4)_3Cl$ (both hexagonal and monoclinic structures are known)
$NaCa_2[LREE^{3+}]Sr(PO_4)_3F$ (currently only the Ce^{3+} species is recognized; trigonal)
$Sr_3Ca_2(AsO_4)_3OH$ (monoclinic)
$Pb_3Ca_2(PO_4)_3F$
$Ca_3Ca_2(AsO_4)_3OH$
$Ba_3(Na[LREE^{3+}])(PO_4)_3(F_{0.5}Cl_{0.5})$ (currently only the Ce^{3+} species is recognized; trigonal)
$Ba_3Ba_2(AsO_4)_3Cl$
$Pb_3Pb_2(PO_4)_3Cl$

$Ca_3Ca_2(AsO_4)_3F$
$Ca_3Ca_2(AsO_4)_3Cl$
$Pb_3Pb_2(VO_4)_3Cl$

major SILICATE mineral groups

Olivine group

$^{VI}(M1)^{VI}(M2)[\mathbf{TO_4}]$

$MgMg[\mathbf{SiO_4}]$ ($Mg_2[SiO_4]$ also occurs as important high pressure polymorphs in the lower mantle)
$Fe^{2+}Fe^{2+}[\mathbf{SiO_4}]$
$NiNi[\mathbf{SiO_4}]$
$MnMn[\mathbf{SiO_4}]$ (Zn may replace Mn in M1)
$(Fe^{2+}_{0.50}\square_{0.50})Fe^{3+}[\mathbf{SiO_4}]$
$MgCa[\mathbf{SiO_4}]$
$CaFe^{2+}[\mathbf{SiO_4}]$
$MnCa[\mathbf{SiO_4}]$
$MgAl[\mathbf{BO_4}]$
$AlAl[\mathbf{BeO_4}]$

Garnet group

$^{VIII}(M)_3{}^{VI}(M)_2[\mathbf{TO_4}]_3$

$Mg_3Al_2[\mathbf{SiO_4}]_3$ (Na may replace Mg; P^{5+} may replace Si)
$Fe^{2+}{}_3Al_2[\mathbf{SiO_4}]_3$
$Mn_3Al_2[\mathbf{SiO_4}]_3$ (Y may replace Mn; $(\square F_4)^{4-}$ may replace $(SiO_4)^{4-}$)
$Ca_3Al_2[\mathbf{SiO_4}]_3$
$Ca_3Fe^{3+}{}_2[\mathbf{SiO_4}]_3$ (Sn^{4+} may replace Fe^{3+})
$Ca_3Cr^{3+}{}_2[\mathbf{SiO_4}]_3$
$Ca_3V^{3+}{}_2[\mathbf{SiO_4}]_3$
$Mg_3Cr^{3+}{}_2[\mathbf{SiO_4}]_3$
$Mg_3(MgSi)[\mathbf{SiO_4}]_3$ (note compositional similarity to pyroxene)
$Ca_3(Fe^{3+}Ti)[(\mathbf{Fe^{3+}O_4})(\mathbf{SiO_4})_2]$ (Al may replace Fe^{3+})
$Ca_3(Fe^{3+}Zr)[(\mathbf{Fe^{3+}O_4})(\mathbf{SiO_4})_2]$ (Al may replace Fe^{3+})
$Mn_3Fe^{3+}{}_2[\mathbf{SiO_4}]_3$
$Ca_3Al_2[(\square\mathbf{\{OH\}_4})(\mathbf{SiO_4})_2]$

Zircon group

$^{VIII}(M)[\mathbf{TO_4}]$

$Zr^{4+}[\mathbf{SiO_4}]$
$Hf^{4+}[\mathbf{SiO_4}]$
$Th^{4+}[\mathbf{SiO_4}]$ (two polymorphs... one belongs to zircon group; one belongs to monazite group)
$U^{4+}[\mathbf{SiO_4}]$
$Th^{4+}[(\square\mathbf{\{OH\}_4})_x(\mathbf{SiO_4})_{1-x}]$
$Y^{3+}[\mathbf{PO_4}]$ ($HREE^{3+}$ may replace Y)
$Yb^{3+}[\mathbf{PO_4}]$ (other $HREE^{3+}$ may replace Yb)
$Ta^{5+}[\mathbf{BO_4}]$ (Nb^{5+} may replace Ta)
$Y^{3+}[\mathbf{AsO_4}]$ ($HREE^{3+}$ may replace Y)
$Y^{3+}[\mathbf{VO_4}]$ ($HREE^{3+}$ may replace Y)
$Ce^{3+}[\mathbf{VO_4}]$ ($LREE^{3+}$ may replace Ce)
$Bi^{3+}[\mathbf{VO_4}]$

Andalusite group (the "aluminum silicates")

$^{VI}(Al)^{IV,V,or\ VI}(Al)O[\mathbf{TO_4}]$ (Mn^{3+}, Fe^{3+}, minor Ti^{4+}, Fe^{2+}, less commonly Cr^{3+} may replace ^{VI}Al; minor P^{5+} may replace Si^{4+})

$^{VI}Al^{IV}AlO[\mathbf{SiO_4}]$
$^{VI}Al^{V}AlO[\mathbf{SiO_4}]$
$^{VI}Al^{VI}AlO[\mathbf{SiO_4}]$
$^{VI}Al^{IV}AlO_X[(\mathbf{SiO_4})_{1-2X}(\mathbf{AlO_4})_{2X}]$

$(^{VI}Al^{VI}AlO[\mathbf{SiO_4}])_4{\bullet}{}^{VI}Al^{IV}Fe^{2+}{}_2O_4H$ (structurally related to the aluminosilicates [notice the "kyanite" layer]... little substitution occurs in this layer; Mg, minor Li, may replace ^{VI}Al in the $^{VI}Al^{IV}Fe^{2+}{}_2O_4H$ layer; Al, minor Co^{2+}, Zn, may replace $^{IV}Fe^{2+}$; additional H may be present)

$^{VI}Al^{VI}AlF_2[\mathbf{SiO_4}]$ (structurally related to the aluminosilicates; significant OH may replace F; minor Cr^{3+}, Mn^{3+}, Fe^{3+}, may replace Al; very minor Ga may replace Al)

Titanite group

$^{VII}(M)^{VI}(M)O[\mathbf{TO_4}]$

$CaTiO[\mathbf{SiO_4}]$ (Na and REE^{3+} [primarily LREE and MREE], as well as small amounts of U^{4+}, Th^{4+}, may replace Ca; substantial Al, Fe^{3+}, as well as minor Nb^{5+}, Zr^{4+}, Ta^{5+}, may replace Ti; substantial F, OH, may replace the independent O)
$CaSn^{4+}O[\mathbf{SiO_4}]$
$CaV^{4+}O[\mathbf{SiO_4}]$

Melilite group

$^{VIII}(M)^{IV}(T)[\mathbf{T_2O_7}]$ (Na extensively replaces Ca in ^{VIII}M)

$Ca_2Mg[\mathbf{Si_2O_7}]$
$Ca_2Al[\mathbf{SiAlO_7}]$
$Ca_2Zn[\mathbf{Si_2O_7}]$
$Ca_2Si[\mathbf{B_2O_7}]$

Epidote group

$^{IX-X}(A2)^{VIII-IX}(A1)^{VI}[M1M2M3]O[\mathbf{TO_4}][\mathbf{T_2O_7}]OH$

$CaCa(Al_2Fe^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$CaCa(Al_2Al)O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$ (may be monoclinic or orthorhombic)
$CaCa(Al_2Cr^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$CaCa(Al_2V^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$PbCa(Al_2Fe^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$CaCa(Al_2Mn^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$ (Mn^{3+} may also replace some Al in M1)
$SrCa(Al_2Mn^{3+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$ (Mn^{3+} may also replace some Al in M1)
$REE^{3+}Ca(Al_2Fe^{2+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$ (currently only the La^{3+}, Ce^{3+}, and Y^{3+} species are recognized)
$REE^{3+}Ca(Al_2Mg)O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$ (currently only the La^{3+} and Ce^{3+} species are recognized)
$REE^{3+}Ca(MgAlMg)F[\mathbf{SiO_4}][\mathbf{Si_2O_7}]F$ (currently only the Ce^{3+} species is recognized)
$REE^{3+}Ca(Fe^{3+}AlFe^{2+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$REE^{3+}Ca(MgAlMn^{2+})F[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
$REE^{3+}Mn^{2+}(Mn^{3+}AlMn^{2+})O[\mathbf{SiO_4}][\mathbf{Si_2O_7}]OH$
+ additional combinations

Beryl-cordierite group

$^{VI}(M)_2{}^{IV}(T)_3[\mathbf{T_6O_{18}}]$ (Cr^{3+}, V^{3+}, Mn^{3+}, Fe^{3+} may replace Al in ^{VI}M; alkali metals, H_2O, CO_2, may occur in channels)

$Al_2Be_3[\mathbf{Si_6O_{18}}]$
$Sc_2Be_3[\mathbf{Si_6O_{18}}]$
$Mg_2Al_3[\mathbf{AlSi_5O_{18}}]$ (may be hexagonal or orthorhombic)
$Fe^{2+}{}_2Al_3[\mathbf{AlSi_5O_{18}}]$ (orthorhombic)

Tourmaline group

$^{channel}(\text{"X"})^{VI}(\text{"Y"})_3{}^{VI}(\text{"Z"})_6(^{III}BO_3)_3[\mathbf{T_6O_{18}}](OH)_3(OH)$ (O may replace one or more of the three structurally similar OH groups; F, rarely Cl, may replace the lone OH; small amounts of Al, B, may replace Si)

$NaMg_3Al_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$NaFe^{2+}{}_3Al_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$ (minor Zn may replace Fe^{2+})
$NaMg_3Cr^{3+}{}_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$NaMg_3V^{3+}{}_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$NaFe^{3+}{}_3Al_6(BO_3)_3[\mathbf{Si_6O_{18}}]O_3F$
$NaFe^{3+}{}_3Fe^{3+}{}_6(BO_3)_3[\mathbf{Si_6O_{18}}]O_3(OH)$
$Na(Li_{1.5}Al_{1.5})Al_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$NaAl_3Al_6(BO_3)_3[\mathbf{Si_6O_{18}}]O_3(OH)$
$\square(Al_2Li)Al_6(BO_3)_3[\mathbf{Si_6O_{18}}]O_3(OH)$
$\square(Mg_2Al)Al_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$\square(Fe^{2+}{}_2Al)Al_6(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$Ca(Li_{1.5}Al_{1.5})Al_6(BO_3)_3[\mathbf{Si_6O_{18}}]\{O(OH)_2\}(F)$
$CaMg_3(Al_5Mg)(BO_3)_3[\mathbf{Si_6O_{18}}](OH)_3(OH)$
$CaFe^{2+}{}_3Al_6(BO_3)_3[\mathbf{Si_6O_{18}}]\{O(OH)_2\}(OH)$

Pyroxene group

$^{VI-VIII}(M2)^{VI}(M1)[\mathbf{T_2O_6}]$ (monoclinic unless otherwise noted)

$MgMg[\mathbf{Si_2O_6}]$ (usually orthorhombic, but rarely monoclinic; some Ca may be present in M2)
$Fe^{2+}Fe^{2+}[\mathbf{Si_2O_6}]$ (usually orthorhombic, but rarely monoclinic; some Ca may be present in M2)
$Mn^{2+}Mg[\mathbf{Si_2O_6}]$ (either orthorhombic or monoclinic)
$CaMg[\mathbf{Si_2O_6}]$
$CaFe^{2+}[\mathbf{Si_2O_6}]$
$CaMn^{2+}[\mathbf{Si_2O_6}]$
$CaZn[\mathbf{Si_2O_6}]$
$CaZn[\mathbf{Si_2O_6}]$
$CaFe^{3+}[\mathbf{AlSiO_6}]$
$CaTi^{4+}[\mathbf{Al_2O_6}]$ (this is a common molecule but it is a hypothetical end-member)
$NaFe^{3+}[\mathbf{Si_2O_6}]$
$NaAl[\mathbf{Si_2O_6}]$
$NaCr^{3+}[\mathbf{Si_2O_6}]$
$NaV^{3+}[\mathbf{Si_2O_6}]$
$NaMn^{3+}[\mathbf{Si_2O_6}]$
$NaSc[\mathbf{Si_2O_6}]$
$LiAl[\mathbf{Si_2O_6}]$

$Ca_2[\mathbf{Si_2O_6}]$ (related to pyroxene group; usually triclinic, but sometimes monoclinic; contains ^{VI}M1, ^{VI}M2, and ^{VII}M3 sites)
$Ca(Mn^{2+})[\mathbf{Si_2O_6}]$ (related to pyroxene group; triclinic; contains ^{VI}M1, ^{VI}M2, ^{VI}M3 and ^{VIII}M4 sites; Fe^{2+}, Mg, minor Zn, may replace Mn)
$Mn^{2+}{}_2[\mathbf{Si_2O_6}]$ (related to pyroxene group; triclinic; contains ^{VI}M1, ^{VI}M2, ^{VI}M3, $^{VI-VIII}$M4 and $^{VI-VIII}$M5 sites; Ca, Fe^{2+}, Mg, minor Zn, may replace Mn)

Amphibole group

$^{XII}(A)^{VIII}(M4)_2{}^{VI}(M1,M2,M3)_5[\mathbf{T_8O_{22}}](OH)_2$ (monoclinic unless otherwise noted; K, Ca, minor Ba, minor Pb, may replace Na in ^{XII}A; Fe^{3+} may replace Al in ^{VI}M, or more rarely Si in ^{IV}T; Ti may replace Fe-Mg in ^{VI}M, or more rarely Si in ^{IV}T; F, less commonly Cl, O, may replace OH)

□ $Mg_2Mg_5[\mathbf{Si_8O_{22}}](OH)_2$ (either orthorhombic or monoclinic)
□ $Fe^{2+}{}_2Fe^{2+}{}_5[\mathbf{Si_8O_{22}}](OH)_2$ (either orthorhombic or monoclinic)
$NaFe^{2+}{}_2Fe^{2+}{}_5[\mathbf{AlSi_7O_{22}}](OH)_2$ (orthorhombic)
$NaFe^{2+}{}_2(Fe^{2+}{}_4Al)[\mathbf{Al_2Si_6O_{22}}](OH)_2$ (orthorhombic)
$NaMg_2Mg_5[\mathbf{AlSi_7O_{22}}](OH)_2$ (orthorhombic)
$NaMg_2(Mg_4Al)[\mathbf{Al_2Si_6O_{22}}](OH)_2$ (orthorhombic)
□ $Mn^{2+}{}_2Mg_5[\mathbf{Si_8O_{22}}](OH)_2$
□ $Mn^{2+}{}_2Fe^{2+}{}_5[\mathbf{Si_8O_{22}}](OH)_2$
□ $Mn^{2+}{}_2(Mg_3Mn^{2+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$
+ additional combinations in the Mg-Fe^{2+}-Mn^{2+} subgroup

□ $Li_2(Fe^{2+}{}_3Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$ (either orthorhombic or monoclinic)
□ $Li_2(Mg_3Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$ (either orthorhombic or monoclinic)
□ $Li_2(LiMg_2Al_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaLi_2(LiMg_2Al_2)[\mathbf{Si_8O_{22}}]F_2$
$NaLi_2(LiFe^{2+}{}_2Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$
$NaLi_2(LiFe^{2+}{}_2Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$
+ additional combinations in the Li subgroup

□ $Ca_2Mg_5[\mathbf{Si_8O_{22}}](OH)_2$
□ $Ca_2Fe^{2+}{}_5[\mathbf{Si_8O_{22}}](OH)_2$
□ $Ca_2(Mg_4Al)[\mathbf{AlSi_7O_{22}}](OH)_2$
□ $Ca_2(Fe^{2+}{}_4Al)[\mathbf{AlSi_7O_{22}}](OH)_2$
□ $Ca_2(Mg_3Al_2)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
□ $Ca_2(Fe^{2+}{}_3Al_2)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
$NaCa_2Mg_5[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaCa_2Fe^{2+}{}_5[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaCa_2(Mg_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
$NaCa_2(Fe^{2+}{}_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
$NaCa_2(Mg_4Al)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
$NaCa_2(Fe^{2+}{}_4Al)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
$NaCa_2(Mg_3Al_2)[\mathbf{Al_3Si_5O_{22}}](OH)_2$
$NaCa_2(Fe^{2+}{}_3Al_2)[\mathbf{Al_3Si_5O_{22}}](OH)_2$
$CaCa_2(Mg_4Al)[\mathbf{Al_3Si_5O_{22}}]F_2$
$KCa_2(Fe^{2+}{}_4Fe^{3+})[\mathbf{Al_2Si_6O_{22}}]Cl_2$
+ additional combinations in the Ca-Ca subgroup

□ $(NaCa)(Mg_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
□ $(NaCa)(Fe^{2+}{}_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
□ $(NaCa)(Mg_3Al_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
□ $(NaCa)(Fe^{2+}{}_3Al_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
□ $(NaCa)(Mg_3Fe^{3+}{}_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$Na(NaCa)Mg_5[\mathbf{Si_8O_{22}}](OH)_2$
$Na(NaCa)Fe^{2+}{}_5[\mathbf{Si_8O_{22}}](OH)_2$
$Na(NaCa)(Mg_4Al)[\mathbf{AlSi_7O_{22}}](OH)_2$
$Na(NaCa)(Fe^{2+}{}_4Al)[\mathbf{AlSi_7O_{22}}](OH)_2$
$Na(NaCa)(Mg_3Al_2)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
$Na(NaCa)(Fe^{2+}{}_3Al_2)[\mathbf{Al_2Si_6O_{22}}](OH)_2$
$Na(NaCa)Mg_5[\mathbf{Si_8O_{22}}]F_2$
$K(NaCa)Mg_5[\mathbf{Si_8O_{22}}](OH)_2$
+ additional combinations in the Na-Ca subgroup

□ $Na_2(Mg_3Al_2)[\mathbf{Si_8O_{22}}](OH)_2$
□ $Na_2(Fe^{2+}{}_3Al_2)[\mathbf{Si_8O_{22}}](OH)_2$
□ $Na_2(Mg_3Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$

□$Na_2(Fe^{2+}{}_3Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$
$NaNa_2(Mg_3Al_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaNa_2(Fe^{2+}{}_3Al_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaNa_2(Mg_3Fe^{3+}{}_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaNa_2(Fe^{2+}{}_3Fe^{3+}{}_2)[\mathbf{AlSi_7O_{22}}](OH)_2$
$NaNa_2(Mg_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
$NaNa_2(Fe^{2+}{}_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
$NaNa_2(Mn^{2+}{}_4Al)[\mathbf{Si_8O_{22}}](OH)_2$
$NaNa_2(Mg_2Fe^{3+}{}_2Li)[\mathbf{Si_8O_{22}}](OH)_2$
$KNa_2(Mg_4Fe^{3+})[\mathbf{Si_8O_{22}}]F_2$
$NaNa_2(MgMn^{3+}{}_2LiTi)[\mathbf{AlSi_7O_{22}}](OH)_2$
+ additional combinations in the Na-Na subgroup

□$(NaLi)(Mg_3Fe^{3+}{}_2)[\mathbf{Si_8O_{22}}](OH)_2$
□$(NaLi)(Fe^{2+}{}_3Fe^{3+}Al)[\mathbf{Si_8O_{22}}](OH)_2$
□$(NaLi)(Mg_3Fe^{3+}Al)[\mathbf{Si_8O_{22}}](OH)_2$
$Na(NaLi)(Mg_2Fe^{3+}AlLi)[\mathbf{Si_8O_{22}}](OH)_2$
$Na(NaLi)(Fe^{2+}{}_2Fe^{3+}AlLi)[\mathbf{Si_8O_{22}}](OH)_2$
$Na(NaLi)(Mg_2Fe^{3+}{}_2Li)[\mathbf{Si_8O_{22}}](OH)_2$
+ other hypothetical combinations in the Na-Li subgroup are possible

$NaNa_2(Mg_3Fe^{3+}Ti)[\mathbf{Si_8O_{22}}]O_2$
$NaNa_2(Mn^{2+}{}_2Mn^{3+}{}_3)[\mathbf{AlSi_7O_{22}}]O_2$
$NaCa_2(Mg_3TiAl)[\mathbf{Al_2Si_6O_{22}}]O_2$
+ additional combinations in the oxo subgroup

Kaolinite-serpentine group

$^{VI}(M)_6[\mathbf{T_4O_{10}}](OH)_8$ (notice compositional similarity to chlorite group)

$(Al_4□_2)[\mathbf{Si_4O_{10}}](OH)_8$ (multiple polymorphs and polytypes; monoclinic or triclinic; halloysite-10Å additionally has 2 molecules of structural H_2O)
$Mg_6[\mathbf{Si_4O_{10}}](OH)_8$ (multiple polymorphs and polytypes; monoclinic, hexagonal, orthorhombic)
$Fe^{2+}{}_6[\mathbf{Si_4O_{10}}](OH)_8$
$Ni^{2+}{}_6[\mathbf{Si_4O_{10}}](OH)_8$ (multiple polymorphs; monoclinic or trigonal)
$(Mg_4Al_2)[\mathbf{Al_2Si_2O_{10}}](OH)_8$
$(Fe^{2+}{}_4Al_2)[\mathbf{Al_2Si_2O_{10}}](OH)_8$
$(Ni^{2+}{}_4Al_2)[\mathbf{Al_2Si_2O_{10}}](OH)_8$
$(Mn^{2+}{}_4Al_2)[\mathbf{Al_2Si_2O_{10}}](OH)_8$
$(Zn_4Al_2)[\mathbf{Al_2Si_2O_{10}}](OH)_8$ (some Ca may replace Zn)
$(Fe^{2+}{}_4Fe^{3+}{}_2)[\mathbf{Fe^{3+}{}_2Si_2O_{10}}](OH)_8$
$(Al_4Li_2)[\mathbf{AlBSi_2O_{10}}](OH)_8$

Pyrophyllite-talc group

$^{VI}(M)_3[\mathbf{T_4O_{10}}](OH)_2$

$(Al_2□)[\mathbf{Si_4O_{10}}](OH)_2$ (multiple polytypes; monoclinic or triclinic)
$Mg_3[\mathbf{Si_4O_{10}}](OH)_2$
$Fe^{2+}{}_3[\mathbf{Si_4O_{10}}](OH)_2$
$Ni^{2+}{}_3[\mathbf{Si_4O_{10}}](OH)_2$
$(Fe^{3+}{}_2□)[\mathbf{Si_4O_{10}}](OH)_2$

Mica group

$^{XII}(A)^{VI}[M2_2M1][\mathbf{T_4O_{10}}](OH)_2$

$K(Al_2□)[\mathbf{AlSi_3O_{10}}](OH)_2$ (multiple polytypes; monoclinic or trigonal)
$Na(Al_2□)[\mathbf{AlSi_3O_{10}}](OH)_2$ (multiple polytypes; monoclinic or trigonal)

{$Ba_{0.5}(Na,K)_{0.5}$}$(Al_2\square)$[**$Al_{1.5}Si_{2.5}O_{10}$**]$(OH)_2$
$K(V_2\square)$[**$AlSi_3O_{10}$**]$(OH)_2$
$K(Fe^{3+}Mg\square)$[**Si_4O_{10}**]$(OH)_2$
$K(AlMg\square)$[**Si_4O_{10}**]$(OH)_2$
$K(Cr^{3+}Mg\square)$[**Si_4O_{10}**]$(OH)_2$
$(NH_4)(Al_2\square)$[**$AlSi_3O_{10}$**]$(OH)_2$
$Cs(Al_2\square)$[**$AlSi_3O_{10}$**]$(OH)_2$
$K(Al_2\square)$[**BSi_3O_{10}**]F_2 (multiple polytypes; monoclinic)
$Ba(V_2\square)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
$Ca(Al_2\square)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
+ additional dioctahedral micas

$K(Mg_3)$[**$AlSi_3O_{10}$**]$(OH)_2$ (multiple polytypes; monoclinic or trigonal)
$K(Fe^{2+}{}_3)$[**$AlSi_3O_{10}$**]$(OH)_2$
$K(Mg_2Al)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
$K(Fe^{2+}{}_2Al)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
$Na(Al_2Li)$[**$Al_2Si_2O_{10}$**]$(OH)_2$ (multiple polytypes; monoclinic)
$K(Mg_3)$[**$AlSi_3O_{10}$**]F_2
$K(Fe^{2+}{}_3)$[**$AlSi_3O_{10}$**]F_2
$K(Mn^{2+}{}_3)$[**$AlSi_3O_{10}$**]$(OH)_2$
$K(Zn_3)$[**$AlSi_3O_{10}$**]$(OH)_2$
$K(LiAlMn^{2+})$[**$AlSi_3O_{10}$**]F_2 (multiple polytypes; monoclinic)
$K(Mn^{3+}{}_2Li)$[**Si_4O_{10}**]O_2
$Na(Mg_2Al)$[**$Al_2Si_2O_{10}$**]$(OH)_2$ (multiple polytypes; monoclinic)
$Cs(Li_2Al)$[**Si_4O_{10}**]F_2
$K(Mg_2Li)$[**Si_4O_{10}**]F_2 (multiple polytypes; monoclinic)
$K(Fe^{2+}{}_3)$[**$Fe^{3+}Si_3O_{10}$**]$(OH)_2$
$K(Mg_3)$[**$Fe^{3+}Si_3O_{10}$**]$(OH)_2$
$K(Li_2Al)$[**Si_4O_{10}**]F_2
$K(Li_{1.5}Al_{1.5})$[**$AlSi_3O_{10}$**]F_2 (multiple polytypes; monoclinic or trigonal)
$Ba(Fe^{2+}{}_3)$[**$Fe^{3+}Si_3O_{10}$**]$S(OH)$
$Ca(Al_2Li)$[**$BeAlSi_2O_{10}$**]$(OH)_2$
$Ca(Mg_2Al)$[**Al_3SiO_{10}**]$(OH)_2$
$Ba(Fe^{2+}{}_3)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
$Ba(Mg_3)$[**$Al_2Si_2O_{10}$**]$(OH)_2$
$Ba(Mg_2Ti)$[**$Al_2Si_2O_{10}$**]O_2
+ additional trioctahedral micas

Chlorite group

$^{VI}(M)_3{}^{VI}(M)_3$[**T_4O_{10}**]$(OH)_8$ (notice compositional similarity to kaolinite-serpentine group; various polytypes are possible)

$(Al_2\square)(Al_{2.33}\square_{0.67})$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Al_2\square)(Al_2Li)$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Al_2\square)(Mg_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Mg_3)(Mg_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Mg_3)(Ni^{2+}{}_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$ (Ni^{2+} may also replace some Mg)
$(Zn_3)(Fe^{2+}{}_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Fe^{2+}{}_3)(Fe^{2+}{}_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$
$(Mn^{2+}{}_3)(Mn^{2+}{}_2Al)$[**$AlSi_3O_{10}$**]$(OH)_8$

Feldspar group

^{cage}A[**T_4O_8**] (in addition to the ions noted below, minor Pb, very minor Cs, may replace K, Na, Ca, Ba; minor P^{5+} may replace Si; triclinic unless otherwise noted)

K[**$AlSi_3O_8$**] (monoclinic and triclinic polymorphs)
Na[**$AlSi_3O_8$**] (monoclinic and triclinic polymorphs)
Rb[**$AlSi_3O_8$**]
K[**$Fe^{3+}Si_3O_8$**] (a moderately common molecule although hypothetical end-member)

$(NH_4)[\mathbf{AlSi_3O_8}]$ (monoclinic)
$Na[\mathbf{BSi_3O_8}]$
$Ca[\mathbf{Al_2Si_2O_8}]$ (hexagonal, orthorhombic and triclinic polymorphs)
$Ba[\mathbf{Al_2Si_2O_8}]$ (several monoclinic polymorphs)
$Sr[\mathbf{Al_2Si_2O_8}]$ (monoclinic)
$Sr_{0.5}Na[\mathbf{Al_2Si_2O_8}]$ (monoclinic)
$Ba_{0.5}Na[\mathbf{Al_2Si_2O_8}]$ (orthorhombic)
$K[\mathbf{Al_{1.5}Zn_{0.5}Si_{0.5}As^{5+}_{1.5}O_8}]$ (monoclinic)

Sodalite group

$^{cage}A_8[\mathbf{T_{12}O_{24}}]^{cage}X_2$ (note similarity to scapolite group; K may replace Na; minor Fe^{3+} may replace Al; very minor Br, I, may replace Cl; isometric)

$Na_8[\mathbf{Al_6Si_6O_{24}}]Cl_2$
$Na_8[\mathbf{Al_6Si_6O_{24}}](SO_4)\cdot H_2O$
$Na_6Ca_2[\mathbf{Al_6Si_6O_{24}}](SO_4)_2$
$Na_6Ca_2[\mathbf{Al_6Si_6O_{24}}]S_2$
$Ca_8[\mathbf{Al_8Si_4O_{24}}](OH)_2$ (two polymorphs)
$Na_8[\mathbf{Be_2Al_2Si_4O_{24}}]Cl_2$
$\square_8[\mathbf{Al_2Si_{10}O_{24}}][N(CH_3)_4]_2$
$Fe^{2+}_8[\mathbf{Be_6Si_6O_{24}}]S_2$
$Mn^{2+}_8[\mathbf{Be_6Si_6O_{24}}]S_2$
$Zn_8[\mathbf{Be_6Si_6O_{24}}]S_2$

Cancrinite group is structurally similar to the sodalite group [hexagonal and trigonal]

Scapolite group

$^{cage}A_4[\mathbf{T_{12}O_{24}}]^{cage}X$ (note similarity to sodalite group; K, minor Sr [especially in more Ca-rich varieties], may replace Na; minor Fe^{3+} may replace Al; very minor Br, I, may replace Cl; tetragonal)

$Na_4[\mathbf{Al_3Si_9O_{24}}]Cl$
$Ca_4[\mathbf{Al_6Si_6O_{24}}](SO_4)$
$Ca_4[\mathbf{Al_6Si_6O_{24}}](CO_3)$

Zeolite group

$^{cage}A_x[\mathbf{T_yO_{2y}}]\cdot^{cage}nH_2O$ (cage components can typically be exchanged without damage to the aluminosilicate framework)

$Na[\mathbf{AlSi_2O_6}]\cdot H_2O$
$Na_2[\mathbf{Al_2Si_3O_{10}}]\cdot 2H_2O$
$NaCa_2[\mathbf{Al_5Si_5O_{20}}]\cdot 6H_2O$
$Ca_2[\mathbf{Al_4Si_8O_{24}}]\cdot 13H_2O$
+ many additional zeolites, including those with ^{cage}A = K, Ba, and Sr dominant, and some with additional Mg+Fe