# CATALOGUE

OF

# MINERALS,

WITH THEIR

FORMULÆ AND CRYSTALLINE SYSTEMS,

PREPARED FOR THE USE OF THE STUDENTS OF THE

## SCHOOL OF MINES,

OF

COLUMBIA COLLEGE.

BY

THOMAS EGLESTON,

Professor of Mineralogy and Metallurgy.

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SECOND EDITION.


NEW YORK.

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# CONTENTS.

# INTRODUCTION

The following Catalogue of Minerals is intended to serve as a guide to the arrangement of the collection of Minerals of the School of Mines of Columbia College and also as a catalogue to private collections. To render it something more than a mere enumeration of names, the formulæ expressing the chemical composition of the mineral, and the system in which it crystallizes have been given. The classification of the Silicates is that adopted by Dana in the fifth edition of his Mineralogy. The other Minerals have been classified by their bases.

An alphabetical catalogue of the Minerals which crystallize in the different systems will be found on pp. vii—xii.

It has been found most convenient to refer to the systems of crystallization by numbers. A table explaining their meaning, and the names which have been used by different authors will be found on p. vi of the Catalogue.

In order to facilitate reference to collections, a blank column, headed No., has been left before the name of the species.

An asterisk following the name of a mineral, as Sulphur*, p. 1, denotes that it has been found in the United States. A dagger, as Danburite†, p. 5, denotes that it has been found in the United States only. The other minerals, so far as is known, have not been found in this country. The doubtful species have generally been indicated by an interrogation point.

THOMAS EGLESTON.

NEW YORK, JAN., 1871.

## SYSTEMS OF CRYSTALLIZATION.

| No. | Simple Forms. | Axes. |
|---|---|---|
| 1 | Octahedron, or cube. | 3 axes rectangular and equal. |
| 2 | Tetragonal pyramid, or right prism with a square base. | 3 axes rectangular, 2 equal. |
| 3 | Rhombic pyramid, or right prism with a rhombic base. | 3 axes rectangular and unequal. |
| 4 | Monoclinic pyramid, or inclined rhombic prism. | 3 axes unequal, 2 rectangular. |
| 5 | Triclinic pyramid, or doubly inclined rhomboidal prism. | 3 axes unequal and unequally inclined. |
| 6 | Hexagonal pyramid, hexagonal prism, or rhombohedron. | 4 axes, 3 equal and equally inclined, 1 at right angles to the other 3. |

## NAMES USED BY DIFFERENT AUTHORS.

| No. | Mohs. | Weiss and Rose. | Naumann. |
|---|---|---|---|
| 1 | Tessular. | Regular. | Tesseral. |
| 2 | Pyramidal. | 2 and 1 axial. | Tetragonal. |
| 3 | Orthotype. | 1 and 1 axial. | Rhombic. |
| 4 | Hemiorthotype. | 2 and 1 membered. | Monoclinohedric.* |
| 5 | Anorthotype. | 1 and 1 membered. | Triclinohedric.* |
| 6 | Rhombohedral. | 3 and 1 axial. | Hexagonal. |

## NAMES USED BY DIFFERENT AUTHORS.

| No. | Phillips. | Delafosse. | Dana, 1854. | Dana, 1869. |
|---|---|---|---|---|
| 1 | Cubic. | Cubic. | Monometric. | Isometric. |
| 2 | Pyramidal. | Tetragonal. | Dimetric. | Tetragonal. |
| 3 | Prismatic. | Orthorhombic. | Trimetric. | Orthorhombic. |
| 4 | Oblique. | Clinorhombic. | Monoclinic. | Monoclinic. |
| 5 | Anorthic. | Clinohedric. | Triclinic. | Triclinic. |
| 6 | Rhombohedral. | Hexagonal. | Hexagonal. | Hexagonal. |

* Now monoclinic and triclinic.

# MINERALS

ARRANGED ACCORDING TO THEIR

# SYSTEMS OF CRYSTALLIZATION

## 1. ISOMETRIC.

Alabandite.
Altaite.
Amalgam.
Analcite.
Argentite.
Arquerite.
Arsenolite.
Binnite.
Boracite.
Bornite.
Bromyrite.
Brongniardite.
Bunsenite.
Carrollite.
Cerargyrite.
Cerite.?
Chromite.
Clausthalite.
Clayite.
Cobaltite.
Copper.
Corynite.
Cubanite.
Cuprite.
Danalite.
Diamond.
Embolite.
Eulytite.
Faujasite.
Fluorite.
Franklinite.
Gahnite.
Galenite.
Garnet.
Gersdorffite.
Gold.
Grünauite.
Halite.
Hauerite.
Haüynite.
Helvite.
Hercynite.
Iron.
Kalinite.
Kremersite.
Lapis Lazuli.
Laurite.
Lead.
Leucite.
Linnæite.
Magnesioferrite.
Magnetite.
Melaconite.
Mercury.
Microlite.
Native iron.
Naumannite.
Nosite.
Palladium.
Pentlandite.
Percylite.
Periclasite.
Perofskite.
Pettkoite.
Pharmacosiderite.
Platiniridium.
Platinum.
Pollucite.
Pyrite.
Pyrochlore.
Pyrrhite.
Rhodizite.
Sal ammoniac.
Senarmontite.
Silver.
Skutterudite.
Smaltite.
Sodalite.
Sphalerite.
Spinel.
Sylvite.
Tennantite.
Tetrahedrite.
Thorite.
Tritomite.
Tschermigite.
Ullmannite.
Uraninite.
Voltaite.

## 2. TETRAGONAL.

Adelpholite.
Apophyllite
Azorite.
Braunite.
Calomel.
Cassiterite.
Chalcopyrite.
Chiolite.
Dipyre.
Edingtonite.
Ekebergite.
Fergusonite.
Gehlenite.
Guarinite.
Hausmannite.
Lœweite.
Matlockite.
Marialite.
Meionite.
Melilite.
Mellite.
Mizzonite.
Monimolite.
Nagyagite.
Octahedrite.
Paranthite.
Phosgenite.
Romeite.
Rutile.
Sarcolite.
Scheelite.
Stannite. ?
Stolzite.
Tapiolite.
Tin.
Torbernite.
Wernerite.
Wulfenite.
Vesuvianite.
Xenotime.
Zircon.

---

## 3. ORTHORHOMBIC.

Acanthite.
Adamite.
Æschynite.
Aikinite.
Alloclasite.
Andalusite.
Anglesite.
Anhydrite.
Anthophyllite.
Aphthitalite.
Aragonite.
Arsenopyrite.
Astrophyllite.
Atacamite.
Autunite.
Barite.
Bismuthinite.
Bolivianite.
Bournonite.
Brochantite.
Bromlite.
Brookite.
Calamine.
Caledonite.
Carminite.
Carpholite.
Celestite.
Cerussite.
Cervantite.
Chalcocite.
Chalcostibite.
Childrenite.
Chondrodite.
Chrysoberyl.
Chrysolite.
Claudetite.
Columbite.
Cotunnite.
Cryophyllite.
Daleminzite.
Descloizite.
Diaclasite.
Diaspore.
Dimorphite.
Dufrenite.
Dufrenoysite.
Dyscrasite.
Emplectite.
Enargite.
Enstatite.
Epistilbite.
Epsomite.
Euchroite.
Eudnophite.
Euxenite.
Fauserite.
Fayalite.
Felsobanyite.
Fischerite.
Fluellite.
Forsterite.
Gadolinite.
Geocronite.
Gismondite.
Glaucodot.
Goslarite.
Goethite.
Haidingerite.
Herderite.
Herschelite.
Hessite.
Hopeite.
Huebnerite.
Hypersthene.
Ilvaite.
Iolite.
Jamesonite.
Jefferisite. ?
Kaolinite.
Kieserite.
Langite.
Lanthanite.
Leadhillite.
Lecontite.
Lepidolite.
Leucophanite.
Leucopyrite.
Libethenite.
Lindackerite.
Loelingite.
Manganite.
Manganocalcite. ?
Marcasite.
Margarite.

Margarodite.
Mascagnite.
Massicot.
Megabasite.
Mendipite.
Mengite.
Molybdite.
Monticellite.
Mosandrite?
Muscovite.
Naphthalin.
Natrolite.
Nitre.
Okenite. ?
Olivenite.
Orpiment.
Pacite.
Parathorite.
Peganite.
Phillipsite.
Phlogopite.
Phœnicochroite. ?
Pholerite.
Picrosmine.
Polybasite.
Polyhalite. ?
Polycrase.
Polymignite.
Prehnite.
Pseudomalachite.
Pyrolusite.
Pyrophyllite.
Rammelsbergite.
Samarskite.
Sapphirine. ?
Sartorite.
Scorodite.
Serpentine. ?
Seybertite.
Sloanite.
Staurolite.
Stephanite.
Sternbergite.
Stibnite.
Stilbite.
Stromeyerite.
Strontianite.
Stylotypite.
Struvite.
Succinellite.
Sulphur.
Talc.
Tantalite.
Tauriscite.
Tephroite.
Thenardite.
Thermonatrite.
Thomsonite.
Topaz.
Triphylite.
Triplite.
Tyrolite.
Valentinite.
Villarsite.
Wavellite.
Witherite.
Wittichenite.
Wolframite.
Yttrotantalite.
Zinkenite.
Zoisite.

## 4. MONOCLINIC.

Acmite.
Ægirite.
Allanite.
Alunogen.
Amphibole.
Annabergite.
Arfvedsonite. ?
Atelestite.
Azurite.
Barytocalcite.
Bieberite.
Bobierrite.
Borax.
Bosjemanite. ?
Botryogen.
Brewsterite
Brushite.
Cabrerite.
Churchite. ?
Clinoclasite.
Conarite. ?
Corundophilite.
Crednerite.
Crocoite.
Cyanochroite.
Datolite.
Durangite.
Epidote.
Erythrite.
Euclase.
Fibrolite.
Fichtelite.
Freieslebenite.
Gay-Lussite.
Glauberite.
Gypsum.
Harmotome.
Hartite.
Hessenbergite.
Heulandite.
Hœrnesite.
Hureaulite.
Hyalophane.
Hydromagnesite.
Johannite.
Keilhauite.
Kermesite.
Koettigite.
Kupfferite.
Lanarkite.
Laumontite.
Lazulite.
Linarite.
Liroconite.
Malachite.
Melanterite.
Meneghinite.
Metabrushite.
Mirabilite.
Miargyrite.
Monazite.
Natron.
Orthoclase.
Pachnolite.
Partschinite.
Pectolite.
Petalite.
Pharmacolite.
Pickeringite. ?
Picromerite.
Piedmontite.
Plagionite.
Prosopite.
Pyrosclerite. ?
Pyrostilpnite.
Pyroxene.
Realgar.
Ripidolite.
Rittingerite.
Rœmerite.
Rutherfordite.

Scheererite.
Scolecite.
Spodumene.
Sylvanite.
Symplesite.
Tagilite.
Thomsenolite.
Titanite.
Trona.
Vauquelinite.
Vivianite.
Wagnerite.
Warwickite. ?
Whewellite.
Woehlerite.
Wollastonite.

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## 5. TRICLINIC.

Albite.
Amblygonite.
Andesite.
Anorthite.
Axinite.
Babingtonite.
Chalcanthite.
Chloritoid. ?
Cryolite.
Cyanite.
Danburite.
Labradorite.
Mesolite. ?
Oligoclase.
Rhodonite.
Sassolite.

---

## 6. HEXAGONAL.

Allemontite.
Allopalladium.
Alumian. ?
Alunite.
Ankerite.
Antimony.
Apatite.
Arsenic.
Beryl.
Beudantite.
Biotite.
Bismuth.
Breithauptite.
Brucite.
Calcite.
Cancrinite.
Catapleiite.
Chabazite.
Chalcophyllite.
Cinnabar.
Connellite.
Copiapite. ?
Coquimbite.
Corundum.
Covellite.
Cronstedtite.
Dioptase.
Dolomite.
Dreelite.
Eudialyte.
Fluocerite.
Gibbsite.
Gmelinite.
Graphite.
Greenockite.
Hematite.
Hydrotalcite.
Iodyrite.
Iridosmine.
Jarosite.
Joseite.
Lepidomelane. ?
Leuchtenbergite.
Levynite.
Magnesite.
Meliphanite. ?
Menaccanite.
Mesitite.
Millerite.
Mimetite.
Molybdenite. ?
Nephelite.
Niccolite.
Parisite.
Penninite.
Phenacite.
Pistomesite.
Plattnerite. ?
Prochlorite. ?
Proustite.
Pyroaurite.
Pyrargyrite.
Pyromorphite.
Pyrosmalite.
Pyrrhotite.
Quartz.
Raimondite.
Rhodochrosite.
Schwartzembergite.
Siderite.
Smithsonite.
Soda nitre.
Susannite.
Svanbergite.
Tellurium.
Tetradymite.
Tourmaline.
Vanadinite.
Volborthite.
Water.
Wehrlite.
Willemite.
Wurtzite.
Xanthoconite.
Zinc.
Zincite.

## Minerals which do not Crystallize or whose System is undetermined.

Algodonite.
Allophane.
Alipite.
Aluminite.
Ambrite.
Ammiolite.
Anthosiderite.
Anthracoxenite.
Apatelite.
Aphrodite.
Apjohnite.
Arksutite.
Arseniosiderite.
Asphaltum.
Augelite.
Aurichalcite.
Barrandite.
Barnhardtite.
Bathvillite.
Bayldonite.
Beauxite.
Bechilite.
Berlinite.
Berthierite.
Berzelianite.
Berzeliite.
Biharite.
Bindheimite.
Bismite.
Bismutite.
Blœdite.
Borickite.
Boulangerite.
Brewsterlinite.
Bruecknerellite.
Butyrellite.
Cacoxenite.
Calaverite.
Callainite.
Carnallite.
Carphosiderite.
Castillite.
Cataspilite.
Celadonite.
Cerolite.
Chamoisite.
Chenevixite.
Chilenite.
Chiviatite.
Chlorastrolite.
Chloropal.
Chlorophæite.
Chodneffite.
Chondrarsenite.
Chonicrite.
Chrismatite.
Chrysocolla.
Cimolite.
Cirrolite.
Coccinite.
Collyrite.
Conichalcite.
Cookeite.
Copalite.
Cornwallite.
Crocidolite.
Crookesite.
Cryptolite.
Cryptolinite.
Cryptomorphite.
Cuproscheelite.
Cyanotrichite.
Damourite.
Dechenite.
Deweylite.
Diadochite.
Domeykite.
Dopplerite.
Dysodile.
Ekmannite.
Elaterite.
Eliasite.
Erdmannite.
Erinite.
Eucairite.
Euosmite.
Euphyllite.
Evansite.
Fahlunite.
Ferberite.
Fibroferrite.
Gearksutite.
Genthite.
Geocerite.
Geocerellite.
Geomyricite.
Gillingite.
Glauconite.
Glockerite.
Gold amalgam.
Guyaquillite.
Gummite.
Gyrolite.
Halloysite.
Halotrichite.
Hatchettite.
Hielmite.
Hircite.
Hisingerite.
Hovite.
Howlite.
Humboldtine.
Hydroboracite.
Hydrodolomite.
Hydrophite.
Hydrozincite.
Hypochlorite.
Hypostilbite.
Idrialite.
Isopyre.
Jadeite.
Jollyte.
Kaneite.
Karelinite.
Kischtimite.
Knebelite.
Kobellite.
Könlite.
Lagonite.
Lamprophanite.
Larderellite.
Lehrbachite.
Leucopetrite.
Liebigite.
Limnite.
Limonite.
Löwigite.
Medjidite.
Melanellite.
Mendozite.
Middletonite.
Mineral coal.
Minium.
Misenite.
Molysite.
Montanite.
Montmorillonite.
Mordenite.
Morenosite.
Muromontite.

Naphtha.
Neolite.
Neotocite.
Nitrocalcite.
Nitromagnesite.
Opal.
Œllacherite.
Ozocerite.
Palagonite.
Paragonite.
Paraluminite.
Pencatite.
Pihlite.
Pimelite.
Pinite.
Pisanite.
Pissophanite.
Pitticite.
Pittolium.
Plumbogummite.
Predazzite.
Psilomelane.
Pyrochroite.
Pyroretinite.
Remingtonite.
Retinellite.
Rochlederite.
Rœsslerite.
Samoite.
Saponite.
Schlanite.
Schorlomite.
Schreibersite.
Schrötterite.
Scleretinite.
Selensulphur.
Sepiolite.
Smectite.
Sordavalite.
Spadaite.
Sphærite.
Stanekite.
Stercorite.
Stibiconite.
Stilpnomelane.
Succinite.
Sulphatite.
Sussexite.
Syepoorite.
Szaibelyite.
Tachydrite.
Tachylyte.
Tallingite.
Tasmanite.
Tavistockite.
Taylorite.
Tengerite.
Teschemacherite.
Thrombolite.
Thuringite.
Tiemannite.
Trichalcite.
Troilite.
Trolleite.
Tscheffkinite.
Tungstite.
Turgite.
Turquois.
Ulexite.
Uraconite.
Uranochalcite.
Urpethite.
Vanadic ochre.
Voglianite.
Voglite.
Voigtite.
Volgerite.
Voltzite.
Wad.
Walchowite.
Whitneyite.
Wichtisite.
Wolchonskoite.
Xanthosiderite.
Xonaltite.
Xyloretinite.
Yttrocerite.
Zaratite.
Zietrisikite.
Zinkosite.
Zippeite.
Zorgite.

# ANALYTICAL TABLE.

# CATALOGUE OF MINERALS.

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | **HYDROGEN.** | |
| | **Water*** | Ḣ | 6 |
| | | **SULPHUR.** | |
| | **Sulphur*** | S | 3 |
| | **Selensulphur*** | S, Se | |
| | **Sulphatite*** | Ḣ S̈ | |
| | | **TELLURIUM.** | |
| | **Tellurium** | Te | 6 |
| | | **CARBON.** | |
| | **Diamond*** | C | 1 |
| | **Graphite*** | C | 6 |
| | | **BORON.** | |
| | **Sassolite** | Ḣ³ B̈ | 5 |
| | | **SILICON.** | |
| | **Quartz*** | S̈i | 6 |
| | Chalcedony* | | |
| | Agate* | | |
| | Jasper* | | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Opal** | $\dot{S}i$ | |
| | Precious opal | | |
| | Semi-opal* | | |
| | Fiorite | | |
| | Tripolite | | |

## SILICATES.

### A. ANHYDROUS SILICATES.

#### *I. BISILICATES.*

##### I. AMPHIBOLE GROUP.

###### 1.—*Pyroxene Section.*

| | | |
|---|---|---|
| **Enstatite*** | $\dot{M}g\,\dot{S}i$ | 3 |
| **Hypersthene** | $(\dot{M}g, \dot{F}e)\,\dot{S}i$ | 3 |
| **Diaclasite** | $(\dot{M}g, \dot{C}a\,\dot{F}e)\,\dot{S}i$ | 3 |
| **Wollastonite*** | $\dot{C}a\,\dot{S}i$ | 4 |
| **Pyroxene*** | $\dot{R}\,\dot{S}i$ | 4 |
| Malacolite* | $(\dot{C}a\,\dot{M}g)\,\dot{S}i$ | |
| Sahlite* | $(\dot{C}a\,\dot{M}g\,\dot{F}e)\,\dot{S}i$ | |
| Hedenbergite* | $(\dot{C}a\,\dot{F}e)\,\dot{S}i$ | |
| Augite* | $(\dot{C}a\,\dot{M}g\,\dot{F}e)\,(\dot{S}i\,\ddot{A}l\frac{2}{3})$ | |
| **Ægirite** | $(\frac{1}{3}\,(\dot{C}a\,\dot{N}a\,\dot{F}e)^{3}+\frac{1}{3}\,\ddot{F}e)\,\dot{S}i^{3}$ | 4 |
| **Acmite** | $(\frac{1}{3}\,(\dot{N}a\,\dot{F}e)^{3}+\frac{2}{3}\,\ddot{F}e)\,\dot{S}i^{3}$ | 4 |
| **Rhodonite*** | $\dot{M}n\,\dot{S}i$ | 5 |
| **Babingtonite*** | $(\frac{3}{4}\,(\dot{C}a\,\dot{F}e\,\dot{M}n)^{3}+\frac{1}{4}\,\ddot{F}e)\,\dot{S}i^{3}$ | 5 |

###### 2.—*Spodumene Section.*

| | | |
|---|---|---|
| **Spodumene*** | $\frac{1}{5}(\dot{L}i\,\dot{N}a)^{3}+\frac{4}{5}\,\ddot{A}l)\,\dot{S}i^{3}$ | 4 |
| **Petalite*** | $(\frac{1}{5}(\dot{L}i\,\dot{N}a)^{3}+\frac{4}{5}\,\ddot{A}l)\,\dot{S}i^{3}+3\,\dot{S}i$ | 4 |

| No. | Name. | Formula. | System of crystalliz-ation. |
|---|---|---|---|
| | | 3.—*Amphibole Section.* | |
| | **Kupfferite** | $\dot{M}g\ \ddot{S}i$ | 4 |
| | **Anthophyllite** | $(\frac{1}{4}\dot{F}e + \frac{3}{4}\dot{M}g)\ \ddot{S}i$ | 3 |
| | **Amphibole*** | $\dot{R}\ \ddot{S}i$ | 4 |
| | Tremolite* | $(\dot{C}a\ \dot{M}g)\ \ddot{S}i$ | |
| | Actinolite* | $(\dot{C}a\ \dot{M}g\ \dot{F}e)\ \ddot{S}i$ | |
| | Hornblende* | $(\dot{M}g\ \dot{C}a\ \dot{F}e)\ (\ddot{S}i\ \ddot{A}l\frac{2}{3})$ | |
| | **Arfvedsonite** | $(\frac{2}{3}\ (\frac{1}{2}\dot{F}e+\frac{1}{2}\dot{N}a)^3+\frac{1}{3}\dot{F}e)\ \ddot{S}i^3$ | 4 ? |
| | **Crocidolite** | $(\dot{N}a\ \dot{M}g\ \dot{F}e)^6\ \ddot{S}i^5+2\ \dot{H}$ | |
| | | *Appendix to Amphibole Section.* | |
| | **Wichtisite** | $(\frac{1}{3}\ (\dot{N}a\ \dot{M}g\ \dot{C}a\ \dot{F}e)\ ^3+\frac{1}{3}(\ddot{A}l\ \dot{F}e))\ddot{S}i^3$ | |
| | **Sordavalite** | $(\frac{1}{3}\ (\dot{M}g\ \dot{F}e)^2+\frac{1}{3}\ \ddot{A}l)\ \ddot{S}i^3$ | |
| | **Tachylyte** | $\dot{K},\ \dot{N}a,\ \dot{C}a,\ \dot{M}g,\ \dot{F}e,\ \ddot{A}l,\ \ddot{S}i$ | |
| | | II. BERYL GROUP. | |
| | **Beryl*** | $(\frac{1}{2}\ \dot{B}e^3+\frac{1}{2}\ \ddot{A}l)\ \ddot{S}i^3$ | 6 |
| | **Eudialyte** | $2\ (\dot{C}a\ \dot{N}a)^2\ \ddot{S}i^2+\dot{Z}r\ \ddot{S}i^2$ | 6 |
| | | III. POLLUCITE GROUP. | |
| | **Pollucite** | $(\dot{C}s^3\ \ddot{A}l)\ \ddot{S}i^3+\frac{1}{2}\ \dot{H}$ | 1 |
| | | *II. UNISILICATES.* | |
| | | I. CHRYSOLITE GROUP. | |
| | **Forsterite*** | $\dot{M}g^2\ \ddot{S}i$ | 3 |
| | **Monticellite** | $(\frac{1}{2}\ \dot{C}a+\frac{1}{2}\ \dot{M}g)^2\ \ddot{S}i$ | 3 |
| | **Chrysolite*** | $(\dot{M}g\ \dot{F}e)^2\ \ddot{S}i$ | 3 |
| | **Fayalite** | $\dot{F}e^2\ \ddot{S}i$ | 3 |
| | **Tephroite*** | $\dot{M}n^2\ \ddot{S}i$ | 3 |
| | **Knebelite** | $(\frac{1}{2}\ \dot{F}e+\frac{1}{2}\ \dot{M}n)^2\ \ddot{S}i$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Leucophanite** | $[\frac{1}{3}(\dot{C}a\ \dot{N}a)+\frac{1}{3}\ \dot{B}e]^2\ \breve{S}i+\frac{2}{3}\ \breve{S}i$ | 3 |
| | **Woehlerite** | $[\frac{2}{3}(\dot{N}a\ \dot{C}a)^2+\frac{1}{3}\ \dot{Z}r]\breve{S}i[+\frac{1}{10}(\dot{F}e\ \dot{M}n)\ddot{C}b]$ | 4 |
| | | II. PHENACITE GROUP. | |
| | **Willemite*** | $\dot{Z}n^2\ \breve{S}i$ | 6 |
| | **Phenacite** | $\dot{B}e^2\ \breve{S}i$ | 6 |
| | **Meliphanite** | $((\dot{C}a\ \dot{N}a\ \dot{B}e)^3\ \ddot{A}l)^2\ \breve{S}i^3+\frac{2}{3}\ \breve{S}i$ | 6 ? |
| | | III. HELVITE GROUP. | |
| | **Helvite** | $(\frac{1}{3}(\dot{M}n\ \dot{F}e)+\frac{1}{3}\ \dot{B}e)^2\ \breve{S}i+\frac{1}{3}\ MnS$ | 1 |
| | **Danalite†** | $(\frac{1}{3}(\dot{F}e\ \dot{M}n\ \dot{Z}n)+\frac{1}{3}\ \dot{B}e)^2\ \breve{S}i+\frac{1}{3}\ ZnS$ | 1 |
| | | IV. GARNET GROUP. | |
| | **Garnet*** | $(\frac{1}{3}\ \dot{R}^3+\frac{1}{3}\ \ddot{R})^2\breve{S}i^3$ | 1 |
| | Pyrope* | $(\frac{1}{3}(\dot{C}a\ \dot{M}g\ \dot{F}e\ \dot{M}n)^3+\frac{1}{3}\ \ddot{A}l)^2\breve{S}i^3$ | |
| | Grossularite* | $(\frac{1}{3}\ \dot{C}a^3+\frac{1}{3}\ \ddot{A}l)^2\ \breve{S}i^3$ | |
| | Almandite* | $(\frac{1}{3}\ \dot{F}e^3+\frac{1}{3}\ \ddot{A}l)^2\ \breve{S}i^3$ | |
| | Spessartite* | $(\frac{1}{3}(\dot{M}n\ \dot{F}e)^3+\frac{1}{3}\ \ddot{A}l)^2\ \breve{S}i^3$ | |
| | Andradite* | $(\frac{1}{3}\ \dot{C}a^3+\frac{1}{3}(\dot{F}e\ \ddot{A}l))^2\ \breve{S}i^3$ | |
| | Ouvarovite | $(\frac{1}{3}\ \dot{C}a^3+\frac{1}{3}\ \ddot{C}r)^2\ \breve{S}i^3$ | |
| | | V. VESUVIANITE GROUP. | |
| | **Zircon*** | $\dot{Z}r\ \breve{S}i$ | 2 |
| | **Vesuvianite*** | $(\frac{2}{3}(\dot{C}a\ \dot{M}g\ \dot{F}e)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i^3$ | 2 |
| | **Melilite** | $(\frac{2}{3}(\dot{N}a\ \dot{M}g\ \dot{C}a)^3+\frac{1}{3}(\ddot{A}l\ \dot{F}e))^2\ \breve{S}i^3$ | 2 |
| | | VI. EPIDOTE GROUP. | |
| | **Epidote*** | $(\frac{1}{3}\ \dot{C}a^3+\frac{2}{3}(\ddot{A}l\ \dot{F}e))^2\ \breve{S}i^3$ | 4 |
| | **Piedmontite** | $(\frac{1}{3}\ \dot{C}a^3+\frac{2}{3}(\ddot{A}l\ \dot{F}e\ \dot{M}n))^2\ \breve{S}i^3$ | 4 |
| | **Allanite*** | $(\frac{1}{3}(\dot{C}e\ \dot{F}e\ \dot{L}a\ \dot{D}i\ \dot{Y}\ \dot{C}a)^3+\frac{1}{3}(\ddot{A}l\ \dot{F}e))^2\ \breve{S}i^3$ | 4 |
| | **Muromontite** | Ce, La, Y, Be, Fe, Al, Si | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Zoisite*** | $(\frac{1}{3}\,\dot{C}a^3+\frac{2}{3}\,\ddot{A}l)^2\,\breve{S}i^3$ | 3 |
| | **Jadeite** | $(\frac{1}{3}(\frac{2}{3}\dot{N}a+\frac{1}{3}\dot{R})^3+\frac{2}{3}\ddot{A}l)^2\breve{S}i^3+3\,\breve{S}i$ | |
| | **Partschinite** | $(\frac{1}{3}(\dot{M}n\ \dot{F}e)^3+\frac{1}{3}\,\ddot{A}l)^2\,\breve{S}i^3$ | 4 |
| | **Gadolinite** | $(\dot{B}e\ \dot{Y}\ \dot{C}e\ \dot{F}e)^2\,\breve{S}i$ | 3 |
| | **Mosandrite** | $(\frac{1}{3}\,\dot{C}a^3+\frac{2}{3}(\dot{T}i\ \ddot{C}e\ \ddot{L}a\ \ddot{D}))^2\,\breve{S}i^3+1\frac{1}{2}\,\dot{H}$ | 3 ? |
| | **Ilvaite*** | $(\frac{2}{5}(\dot{C}a\ \dot{F}e)^3+\frac{2}{5}(\ddot{F}e\ \ddot{A}l))^2\,\breve{S}i^3$ | 3 |
| | VII. AXINITE GROUP. | | |
| | **Axinite*** | $(\dot{C}a^3\ \dot{R}\ \ddot{B})^2\,\breve{S}i^3$ | 5 |
| | **Danburite†** | $(\frac{1}{4}\,\dot{C}a^3+\frac{3}{4}\ddot{B})^2\,\breve{S}i^3$ | 5 |
| | VIII. IOLITE GROUP. | | |
| | **Iolite*** | $2(\dot{F}e\ \dot{M}g)\,\breve{S}i+\ddot{A}l^2\,\breve{S}i^3$ | 3 |
| | IX. MICA GROUP. | | |
| | **Phlogopite*** | $(\frac{7}{11}(\dot{K}\ \dot{M}g)^3+\frac{4}{11}\,\ddot{A}l)^2\,\breve{S}i^3$ | 3 |
| | **Biotite*** | $(\frac{1}{2}(\dot{K}\ \dot{M}g\ \dot{F}e)^3+\frac{1}{2}(\ddot{A}l\ \ddot{F}e))^2\,\breve{S}i^3$ | 6 |
| | **Lepidomelane*** | $(\frac{1}{4}(\dot{K}\ \dot{M}g\ \dot{F}e)^3+\frac{3}{4}(\ddot{A}l\ \ddot{F}e))^2\,\breve{S}i^3$ | 6 ? |
| | **Astrophyllite** | $[(\dot{T}i\ \dot{Z}r)\ \frac{3}{2}(\dot{K}\ \dot{F}e\ \dot{M}n)^3\ (\ddot{A}l\ \ddot{F}e)]^2\,\breve{S}i^3$ | 3 |
| | **Muscovite*** | ‡$3\ (\dot{R}^3\ \ddot{R})^2\,\breve{S}i^3+2\ (\dot{R}^3\ \ddot{R})\,\breve{S}i^3$ | 3 |
| | **Lepidolite*** | §$(\dot{R}^3\ \ddot{R})^2\,\breve{S}i^3+2\ (\dot{R}^3\ \ddot{R})\,\breve{S}i^3$ | 3 |
| | **Cryophyllite†** | ‖$(\frac{3}{7}\,\dot{R}^3+\frac{4}{7}\,\ddot{R})^2\,\breve{S}i^3+3\,\breve{S}i$ | 3 |
| | X. SCAPOLITE GROUP. | | |
| | Tetragonal, $\dot{R}:\ddot{R}$ 1:1. 1:2 & 1:3 | | |
| | **Sarcolite** | $(\frac{1}{3}(\frac{9}{10}\,\dot{C}a+\frac{1}{10}\,\dot{N}a)^3+\frac{1}{2}\,\ddot{A}l)^2\,\breve{S}i^3$ | 2 |
| | **Meionite** | $(\frac{1}{3}(\frac{10}{11}\,\dot{C}a+\frac{1}{11}\,\dot{N}a)^3+\frac{3}{8}\,\ddot{A}l)^2\,\breve{S}i^3$ | 2 |
| | **Paranthite** | $(\frac{1}{4}\,\dot{C}a^3+\frac{3}{4}\,\ddot{A}l)^2\,\breve{S}i^3$ | 2 |

‡ $\dot{R}$=K̇, Ṅa, Ṁg $\ddot{R}$=F̈e, Ä̈l §$\dot{R}$=L̇i, K̇ $\ddot{R}$=Ä̈l, F̈e

‖ $\dot{R}$=L̇i, K̇, Ḟe $\ddot{R}$=Ä̈l, F̈e, M̈n

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Wernerite*** | $(\frac{1}{3}(\dot{C}a\ \dot{N}a)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i^3+\breve{S}i$ | 2 |
| | **Ekebergite*** | $(\frac{1}{3}(\dot{C}a\ \dot{N}a)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i^3+3\ \breve{S}i$ | 2 |
| | **Mizzonite** | $(\frac{1}{3}(\dot{C}a\ \dot{N}a)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i^3+2\frac{1}{4}\ \breve{S}i$ | 2 |
| | **Dipyre** | $(\frac{1}{3}(\frac{1}{2}\ \dot{N}a+\frac{1}{2}\ \dot{C}a)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i^3+6\ \breve{S}i$ | 2 |
| | **Marialite** | $(\frac{1}{3}(\dot{N}a\ \dot{C}a)^3+\frac{2}{3}\ \ddot{A}l)^2\ \breve{S}i+3\ \breve{S}i$ | 2 |
| | | XI. NEPHELITE GROUP. | |
| | | Hexagonal, $\dot{R}:\ddot{R}:1:3$ | |
| | **Nephelite** | $(\frac{1}{4}(\dot{N}a\ \dot{K}\ \dot{C}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+\frac{3}{4}\ \breve{S}i$ | 6 |
| | **Cancrinite*** | $(\frac{1}{4}(\dot{N}a\ \dot{K}\ \dot{C}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+\frac{3}{4}\ \breve{S}i+\dot{N}a\ \ddot{C}$ | 6 |
| | | XII. LEUCITE GROUP. | |
| | | Monometric, $\dot{R}:\ddot{R}::1:3$ | |
| | **Sodalite*** | $(\dot{N}a^3)^2\ \breve{S}i^3+3\ \ddot{A}l^2\ \breve{S}i^3+2\ NaCl$ | 1 |
| | **Lapis Lazuli** | $\dot{N}a, \dot{C}a, \ddot{A}l, \ddot{F}e, \breve{S}i, \ddot{S}, S$ | 1 |
| | **Haüynite** | $(\dot{N}a^3)^2\ \breve{S}i^3+3\ \ddot{A}l^2\ \breve{S}i^3+4\ \dot{C}a\ \ddot{S}$ | 1 |
| | **Nosite** | $(\dot{N}a^3)^2\ \breve{S}i^3+3\ \ddot{A}l^2\ \breve{S}i^3+2\ \dot{N}a\ \ddot{S}$ | 1 |
| | **Leucite** | $(\frac{1}{4}\ \dot{K}^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+3\ \breve{S}i$ | 1 |
| | | XIII. FELDSPAR GROUP. | |
| | | Monoclinic or Triclinic, $\dot{R}:\ddot{R}:1:3$ | |
| | **Anorthite** | $(\frac{1}{4}\ \dot{C}a^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3$ | 5 |
| | **Labradorite*** | $(\frac{1}{4}(\dot{C}a\ \dot{N}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+\frac{3}{2}\ \breve{S}i$ | 5 |
| | **Andesite** | $(\frac{1}{4}(\dot{N}a\ \dot{C}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+3\ \breve{S}i$ | 5 |
| | **Hyalophane** | $(\frac{1}{4}(\dot{K}\ \dot{B}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+3\ \breve{S}i$ | 4 |
| | **Oligoclase*** | $(\frac{1}{4}(\dot{N}a\ \dot{C}a)^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+3\frac{3}{4}\ \breve{S}i$ | 5 |
| | **Albite*** | $(\frac{1}{4}\ \dot{N}a^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+6\ \breve{S}i$ | 5 |
| | **Orthoclase*** | $(\frac{1}{4}\ \dot{K}^3+\frac{3}{4}\ \ddot{A}l)^2\ \breve{S}i^3+6\ \breve{S}i$ | 4 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|

## *III. SUBSILICATES.*

Oxygen ratio of Bases and Silica, 4 : 3

| | | |
|---|---|---|
| **Chondrodite*** | $\dot{M}g^8\,\breve{S}i^3$ | 3 |
| **Tourmaline*** | ‡$(\dot{R}^3\,\ddot{R}\,\ddot{B})^6\,\breve{S}i^9$ | 6 |

Oxygen ratio of Bases to Silica, 3 : 2

Containing no Ti

| | | |
|---|---|---|
| **Gehlenite** | $(\frac{1}{3}(\dot{M}g\,\dot{F}e\,\dot{C}a)^3+\frac{1}{3}(\ddot{A}l\,\ddot{F}e))^2\,\breve{S}i$ | 2 |
| **Andalusite*** | $\ddot{A}l\,\breve{S}i$ | 3 |
| **Fibrolite*** | $\ddot{A}l\,\breve{S}i$ | 4 |
| **Cyanite*** | $\ddot{A}l\,\breve{S}i$ | 5 |
| **Topaz*** | $\ddot{A}l\,\breve{S}i$, with F repl. $\frac{1}{5}$ of O | 3 |
| **Euclase** | $(\frac{1}{6}\,\dot{H}^3+\frac{2}{6}\,\dot{B}e^3+\frac{3}{6}\,\ddot{A}l)\,\breve{S}i$ | 4 |
| **Datolite*** | $(\dot{C}a^3\,\dot{H}^3\,\ddot{B})\,\breve{S}i$ | 4 |

Containing Ti

| | | |
|---|---|---|
| **Guarinite** | $(\dot{C}a+\dot{T}i)\,\breve{S}i$ | 2 |
| **Titanite*** | $(\dot{C}a+\dot{T}i)\,\breve{S}i$ | 4 |
| **Keilhauite** | §$(\dot{R}^3\,\ddot{R}^3_2\,\ddot{R})\,\breve{S}i$ | 4 |
| **Tscheffkinite** | ‖$(\dot{R}^3\,\ddot{R}^3_2\,\ddot{R})\,\breve{S}i$ | |

Oxygen ratio of Bases to Silica, 2 : 1

| | | |
|---|---|---|
| **Staurolite*** | ¶$(\frac{1}{5}\,\dot{R}^3+\frac{4}{5}\,\ddot{A}l)^4\breve{S}i^3$ | 3 |
| **Schorlomite*** | $(\frac{4}{11}\,\dot{C}a^3+\frac{3}{11}\,\dot{F}e+\frac{4}{11}\,\dot{T}i^3_2)^4\,\breve{S}i^3$ | |
| **Sapphirine** | $(3\,\dot{M}g+4\,\ddot{A}l+1\frac{1}{2}\,\breve{S}i)$ | 3 ? |

‡ $\dot{R}$=Na, Ca, Mg, Fe $\ddot{R}$=Al, Fe

§ $\dot{R}$=Ca, Y $\ddot{R}$=Ti $\ddot{R}$=Al, Fe

‖ $\dot{R}$=Ca, Mg, Ce, La, Di, Y, Ti, Ni $\ddot{R}$=Th, Ti $\ddot{R}$=Fe

¶ $\dot{R}$=Fe, Mg $\ddot{R}$=Al, Mn, Fe

| No. | Name. | Formula. | System of crystalization. |
|---|---|---|---|
| | | *Appendix to Anhydrous Silicates.* | |
| | **Eulytite** | $\ddot{B}i^4\ \ddot{S}i^3$ | 1 |
| | **Atelestite** | $\ddot{B}i,\ \ddot{S}i$ | 4 |
| | **Hypochlorite** | $\ddot{A}l,\ \dot{F}e,\ \ddot{B}i,\ \ddot{S}i,\ \dot{P}$ | |
| | **Isopyre** | $\dot{C}a,\ \ddot{A}l,\ \dot{F}e,\ \dot{C}u,\ \ddot{S}i$ | |
| | **Hessenbergite** | | 4 |
| | | B. HYDROUS SILICATES. | |
| | | I. GENERAL SECTION OF HYDROUS SILICATES. | |
| | | *I. BISILICATES.* | |
| | | I. PECTOLITE GROUP. | |
| | **Pectolite*** | $(\frac{4}{6}\ \dot{C}a+\frac{1}{6}\ \dot{N}a+\frac{1}{6}\ \dot{H})\ \ddot{S}i$ | 4 |
| | **Xonaltite** | $\dot{C}a\ \ddot{S}i+\frac{1}{4}\ \dot{H}$ | |
| | **Okenite** | $(\frac{1}{2}\ \dot{C}a+\frac{1}{2}\ \dot{H})\ \ddot{S}i+\frac{1}{2}\ \dot{H}$ | 3 ? |
| | **Gyrolite** | $(\frac{2}{3}\ \dot{C}a+\frac{1}{3}\ \dot{H})\ \ddot{S}i+\dot{H}$ | |
| | **Laumontite*** | $(\frac{1}{4}\ \dot{C}a^3+\frac{3}{4}\ \ddot{A}l)\ \ddot{S}i^3+3\ \dot{H}$ | 4 |
| | | II. DIOPTASE GROUP. | |
| | **Cataplciite** | $((\frac{1}{3}\ \dot{N}a\ \dot{C}a)^2+\frac{2}{3}\ \dot{Z}r)\ \ddot{S}i^2+1\frac{1}{2}\ \dot{H}$ | 6 |
| | **Dioptase** | $\dot{C}u\ \ddot{S}i+\dot{H}$ | 6 |
| | **Chrysocolla*** | $\dot{C}u\ \ddot{S}i+2\ \dot{H}$ | |
| | **Alipite** | $(\frac{1}{3}\ \dot{H}+\frac{2}{3}(\dot{M}g\ \dot{N}i))\ddot{S}i$ | |
| | **Conarite** | $(\frac{1}{3}\ \dot{H}+\frac{2}{3}\ \dot{N}i)\ \ddot{S}i+\frac{2}{3}\ \dot{N}i$ | 4 ? |
| | | III. PICROSMINE GROUP. | |
| | **Picrosmine** | $\dot{M}g\ \ddot{S}i+\frac{1}{2}\ \dot{H}$ | 3 |
| | **Spadaite** | $(\frac{5}{6}\ \dot{M}g+\frac{1}{6}\ \dot{H})\ \ddot{S}i+\frac{1}{2}\ \dot{H}$ | |
| | | *Appendix to Hydrous Silicates.* | |
| | **Neolite** | $\ddagger(\dot{R}^3\ \ddot{A}l\ \ddot{H}^3)\ \ddot{S}i^3$ | |
| | **Anthosiderite** | $\dot{F}e^2\ \ddot{S}i^3+2\ \dot{H}$ | |

‡ $\dot{R}$=$\dot{C}a$, $\dot{M}g$, $\dot{F}e$

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|

## *II. UNISILICATES.*

### I. CALAMINE GROUP.

| | | |
|---|---|---|
| **Calamine*** | $\dot{Z}n^2\,\breve{S}i+\dot{H}$ | 3 |
| **Villarsite** | $(\frac{11}{12}\,\dot{M}g+\frac{1}{12}\,\dot{F}e)^4\,\breve{S}i+\frac{1}{2}\,\dot{H}$ | 3 |
| **Prehnite*** | $(\frac{1}{6}\,\dot{H}^3+\frac{2}{6}\,\dot{C}a+\frac{3}{6}\,\ddot{A}l)^2\,\breve{S}i^3$ | 3 |
| **Chlorastrolite †** | $(\dot{C}a^3\,\dot{N}a^3)^2\,\breve{S}i^3+2(\ddot{A}l\,\ddot{F}e)^2\,\breve{S}i^3+6\,\dot{H}$ | |

### II. THORITE GROUP.

| | | |
|---|---|---|
| **Tritomite** | $\dot{C}e,\,\dot{L}a,\,\dot{C}a,\,\dot{W},\,\ddot{A}l,\,\breve{S}i,\,\dot{H}$ | 1 |
| **Thorite** | $\dot{T}h\,\breve{S}i+1\frac{1}{3}\,\dot{H}$ | 1 |
| **Cerite** | $(\dot{C}e\,\dot{L}a\,\dot{D}i)^2\,\breve{S}i+\dot{H}$ | 1 ? |
| **Erdmannite** | $\dot{C}e,\,\dot{L}a,\,\dot{F}e,\,\dot{M}n,\,\dot{Y},\,\dot{C}a,\,\ddot{A}l,\,\breve{S}i,\,\dot{H}$ | |

### III. PYROSMALITE GROUP.

| | | |
|---|---|---|
| **Pyrosmalite** | $(\frac{1}{8}\,\dot{H}+\frac{7}{8}(\dot{F}e\,\dot{M}n,\,FeCl))^2\,\breve{S}i$ | 6 |

### IV. APOPHYLLITE GROUP.

| | | |
|---|---|---|
| **Apophyllite*** | $(\dot{H}\,\dot{K}\,\dot{C}a)^2\,\breve{S}i+\dot{H}\,\breve{S}i$ | 2 |

### V. GISMONDITE GROUP.

| | | |
|---|---|---|
| **Edingtonite** | $(\frac{2}{7}(\frac{2}{3}\,\dot{H}+\frac{1}{3}\,\dot{B}a)^3+\frac{5}{7}\,\ddot{A}l)^2\,\breve{S}i^3+1\frac{5}{7}\,\dot{H}$ | 2 |
| **Gismondite** | $(\frac{3}{5}\,\dot{C}a+\frac{1}{5}\,\dot{K})+\ddot{A}l,\,2\frac{1}{2}\,\breve{S}i,\,4\frac{1}{2}\,\dot{H}$ | 3 |

### VI. CARPHOLITE GROUP.

| | | |
|---|---|---|
| **Carpholite** | $(\ddot{A}l\,\dot{M}n\,\dot{F}e)^2\,\breve{S}i^3+3\,\dot{H}$ | 3 |

## *III. SUBSILICATES.*

| | | |
|---|---|---|
| **Allophane*** | $\ddot{A}l\,\breve{S}i+6\,\dot{H}$ | |
| **Collyrite** | $\ddot{A}l^2\,\breve{S}i+9\,\dot{H}$ | |
| **Schroetterite** | $\ddot{A}l^6\,\breve{S}i^3+30\,\dot{H}$ | |

| No. | Name. | Formula. | System of crystal. z-atim. |
|---|---|---|---|
| | | II. ZEOLITE SECTION. | |
| | | *I. UNISILICATES.* | |
| | **Thomsonite*** | $(\frac{3}{4}\,\dot{C}a+\frac{1}{4}\,\dot{N}a)$, $\ddot{A}l$, 2 $\ddot{S}i$, $2\frac{1}{2}\,\dot{H}$ | 3 |
| | **Natrolite*** | $\dot{N}a$, $\ddot{A}l$, 3 $\ddot{S}i$, 2 $\dot{H}$ | 3 |
| | **Scolecite** | $\dot{C}a$, $\ddot{A}l$, 3 $\ddot{S}i$, 3 $\dot{H}$ | 4 |
| | **Mesolite** | $(\frac{2}{3}\,\dot{C}a+\frac{1}{3}\,\dot{N}a)$, $\ddot{A}l$, 3 $\ddot{S}i$, 3 $\dot{H}$ | 5 ? |
| | **Levynite** | $(\dot{C}a\,\dot{N}a\,\dot{K})$, $\ddot{A}l$, 3 $\ddot{S}i$, 4 $\dot{H}$ | 6 |
| | | *II. BISILICATES.* | |
| | **Analcite*** | $\dot{N}a$, $\ddot{A}l$, 4 $\ddot{S}i$, 2 $\dot{H}$ | 1 |
| | **Eudnophite** | $\dot{N}a$, $\ddot{A}l$, 4 $\ddot{S}i$, 2 $\dot{H}$ | 3 |
| | **Faujasite** | $(\frac{1}{3}\,\dot{C}a+\frac{1}{3}\,\dot{N}a)$, $\ddot{A}l$, $4\frac{1}{2}$ $\ddot{S}i$, 9 $\dot{H}$ | 1 |
| | **Chabazite*** | $(\frac{1}{3}\,\dot{C}a+\frac{1}{3}(\dot{N}a\,\dot{K}))$, $\ddot{A}l$, 4 $\ddot{S}i$, 6 $\dot{H}$ | 6 |
| | **Gmelinite** | $(\frac{1}{3}\,\dot{C}a+\frac{2}{3}(\dot{N}a\,\dot{K}))$, $\ddot{A}l$, 4 $\ddot{S}i$, 6 $\dot{H}$ | 6 |
| | **Herschelite** | $(\frac{1}{4}\,\dot{N}a+\frac{1}{4}\,\dot{K})$, $\ddot{A}l$, 4 $\ddot{S}i$, 5 $\dot{H}$ | 3 |
| | **Phillipsite** | $(\frac{2}{3}\,\dot{C}a+\frac{1}{3}\,\dot{K})$, $\ddot{A}l$, 4 $\ddot{S}i$, 5 $\dot{H}$ | 3 |
| | **Harmotome** | $\dot{B}a$, $\ddot{A}l$, 5 $\ddot{S}i$, 5 $\dot{H}$ | 4 |
| | **Hypostilbite** | $(\frac{7}{9}\,\dot{C}a+\frac{2}{9}\,\dot{N}a)$, $\ddot{A}l$, $4\frac{1}{2}$ $\ddot{S}i$, 6 $\dot{H}$ | |
| | **Stilbite*** | $\dot{C}a$, $\ddot{A}l$, 6 $\ddot{S}i$, 6 $\dot{H}$ | 3 |
| | **Epistilbite** | $(\frac{4}{5}\,\dot{C}a+\frac{1}{5}\,\dot{N}a)$, $\ddot{A}l$, 6 $\ddot{S}i$, 5 $\dot{H}$ | 3 |
| | **Heulandite*** | $\dot{C}a$, $\ddot{A}l$, 6 $\ddot{S}i$, 5 $\dot{H}$ | 4 |
| | **Brewsterite** | $(\frac{2}{3}\,\dot{S}r+\frac{1}{3}\,\dot{B}a)$, $\ddot{A}l$, 6 $\ddot{S}i$, 5 $\dot{H}$ | 4 |
| | **Mordenite** | $(\frac{2}{3}\,\dot{C}a+\frac{1}{3}\,\dot{N}a)$, $\ddot{A}l$, 9 $\ddot{S}i$, 6 $\dot{H}$ | |
| | **Sloanite** | $\dot{C}a$, $\dot{M}g$, $\ddot{A}l$, $\ddot{S}i$, $\dot{H}$ | 3 |
| | | III. MARGAROPHYLLITE SECTION. | |
| | | *I. BISILICATES.* | |
| | | I. TALC GROUP. | |
| | **Talc*** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{M}g)$ $\ddot{S}i$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Pyrophyllite*** | $(\frac{1}{3}\,\dot{H}^3+\frac{4}{3}\,\ddot{A}l)\,\ddot{S}i^2+\frac{1}{3}\,\dot{H}$ | 3 |
| | **Pihlite*** | $(\frac{1}{5}(\frac{1}{2}\,\dot{H}+\frac{1}{2}\,\dot{K})^3+\frac{4}{5}\,\ddot{A}l)\,\ddot{S}i^3$ | |
| | II. SEPIOLITE GROUP. | | |
| | **Sepiolite** | $(\frac{2}{3}\,\dot{M}g+\frac{1}{3}\,\dot{H})\,\ddot{S}i+\frac{1}{3}\,\dot{H}$ | |
| | **Aphrodite** | $\dot{M}g\,\ddot{S}i+\frac{2}{3}\,\dot{H}$ | |
| | **Cimolite** | $\ddot{A}l^2\,\ddot{S}i^9+3\,\dot{H}$ | |
| | **Smectite*** | $(\frac{1}{3}\,\dot{H}^3+\frac{1}{3}\,\ddot{A}l)\,\ddot{S}i^3+4\frac{1}{3}\,\dot{H}$ | |
| | **Montmorillonite** | $(\frac{1}{5}\,\ddot{A}l^4+\frac{1}{5}\,\dot{H}^3)\,\ddot{S}i^3+5\,\dot{H}$ | |
| | III. CHLOROPAL GROUP. | | |
| | **Stilpnomelane*** | $((\dot{F}e,\dot{M}g)^3\,(\ddot{A}l,\ddot{F}e))\,\ddot{S}i^3+2\,\dot{H}$ | |
| | **Chloropal** | $(\dot{F}e^3\,\ddot{F}e)\,\ddot{S}i^3+4\frac{1}{2}\,\dot{H}$ | |
| | **Glauconite*** | $(\frac{1}{3}\,\dot{F}e+\frac{1}{3}\,\dot{K})^2\,\ddot{S}i^3+2\,(\frac{4}{5}\,\ddot{F}e+\frac{1}{5}\,\ddot{A}l)\,\ddot{S}i^3+6\,\dot{H}$ | |
| | **Celadonite** | $\dot{K},\,\dot{M}g,\,\ddot{F}e,\,\ddot{S}i,\,\dot{H}$ | |
| | *II. UNISILICATES.* | | |
| | IV. SERPENTINE GROUP. | | |
| | **Serpentine*** | $(\frac{1}{4}\,\dot{H}+\frac{3}{4}\,\dot{M}g)^2\,\ddot{S}i+\frac{1}{3}\,\dot{H}$ | 3 ? |
| | **Deweylite*** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{M}g)\,\ddot{S}i+\frac{1}{3}\,\dot{H}$ | |
| | **Cerolite*** | $(\frac{1}{3}\,\dot{H}+\frac{1}{3}\,\dot{M}g)\,\ddot{S}i+\frac{1}{3}\,\dot{H}$ | |
| | **Hydrophite*** | $[\frac{1}{3}\,\dot{H}+\frac{2}{3}(\dot{M}g\,\dot{F}e)]^2\,\ddot{S}i+\frac{4}{3}\,\dot{H}$ | |
| | **Genthite*** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}(\dot{N}i\,\dot{M}g))^2\,\ddot{S}i+\frac{4}{3}\,\dot{H}$ | |
| | **Saponite*** | $\dot{M}g,\,\ddot{A}l,\,\ddot{F}e,\,\ddot{S}i,\,\dot{H}$ | |
| | V. KAOLINITE GROUP. | | |
| | **Pholerite*** | $\ddot{A}l^2\,\ddot{S}i^3+4\,\dot{H}$ | 3 ? |
| | **Kaolinite*** | $(\frac{1}{4}\,\dot{H}^3+\frac{3}{4}\,\ddot{A}l)^2\,\ddot{S}i^3$ | 3 |
| | **Halloysite*** | $\ddot{A}l\,\ddot{S}i^2+3\,\dot{H}$ | |
| | **Samoite** | $\ddot{A}l^2\,\ddot{S}i^3+10\,\dot{H}$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | VI. PINITE GROUP. | |
| | **Pinite*** | $(\frac{1}{4}\,\dot{H}^3+\frac{3}{4}(\dot{K}^3\,\ddot{A}l))^2\,\ddot{S}i^3$ | |
| | **Cataspilite** | $(\frac{3}{5}(\dot{N}a\,\dot{K}\,\dot{C}a\,\dot{M}g)^3+\frac{2}{5}\,\ddot{A}l)^2\,\ddot{S}i^3+\frac{3}{4}\,\dot{H}$ | |
| | **Biharite** | $(\frac{3}{5}(\dot{M}g\,\dot{C}a)^3+\frac{1}{5}\,\ddot{A}l)^2\,\ddot{S}i^3+1\frac{1}{2}\,\dot{H}$ | |
| | **Palagonite*** | $(\frac{1}{4}\,\dot{H}^3+\frac{3}{4}(\dot{C}a\,\dot{M}g)^3+(\dot{F}e\,\ddot{A}l))^2\,\ddot{S}i^3+n\,\dot{H}$ | |
| | | VII. MARGARODITE GROUP. | |
| | **Fahlunite*** | $(\frac{2}{5}(\dot{H}\,\dot{M}g\,\dot{F}e)^3+\frac{3}{5}(\ddot{A}l\,\dot{F}e))^2\,\ddot{S}i^3$ | |
| | **Voigtite** | $(\frac{1}{2}(\dot{F}e\,\dot{M}g)^3+\frac{1}{2}\,(\ddot{A}l\,\dot{F}e))^2\,\ddot{S}i+3\,\dot{H}$ | |
| | **Margarodite*** | $(\frac{1}{4}(\dot{H}^3\,\dot{K}^3)+\frac{3}{4}\,\ddot{A}l)^2\,\ddot{S}i^3$ | 3 |
| | **Damourite** | $(\frac{1}{4}(\frac{2}{3}\,\dot{H}+\frac{1}{3}\,\dot{K})^3+\frac{3}{4}(\ddot{A}l\,\dot{F}e))^2\,\ddot{S}i^3$ | |
| | **Paragonite** | $(\frac{1}{4}(\dot{H}^3\,\dot{N}a^3)+\frac{3}{4}\,\ddot{A}l)^2\,\ddot{S}i^3$ | |
| | **Euphyllite†** | $(\frac{1}{3}(\dot{K}\,\dot{N}a)^3+\frac{2}{3}\,\ddot{A}l)^2\,\ddot{S}i^3+\frac{1}{3}\,\dot{H}$ | |
| | **Œllacherite** | $(\frac{1}{3}(\dot{H}^3\,(\dot{K}\,\dot{B}a\,\dot{M}g)^3)+\frac{2}{3}\,\ddot{A}l)^2\,\ddot{S}i^3$ | |
| | **Cookeite†** | $\dot{L}i,\ \dot{K},\ \ddot{A}l,\ \ddot{S}i,\ \dot{H}$ | |
| | | VIII. HISINGERITE GROUP. | |
| | **Hisingerite** | $[(\dot{M}g\,\dot{F}e)^3\,(\ddot{A}l\,\dot{F}e)]^2\,\ddot{S}i^3+4\,\dot{H}$ | |
| | **Ekmannite** | $(\frac{1}{3}\,\dot{H}^3+\frac{2}{3}(\dot{F}e\,\dot{M}n)^3)^2\,\ddot{S}i^3+\frac{1}{3}\,\dot{H}$ | |
| | **Neotocite** | $(\frac{1}{3}\,\dot{H}^3+\frac{2}{3}(\dot{M}g^3\,\dot{M}n^3\,\dot{F}e))^2\,\ddot{S}i^3+3\,\dot{H}$ | |
| | **Gillingite** | $[(\dot{C}a\,\dot{M}g\,\dot{F}e)^3\,\dot{F}e]^2\,\ddot{S}i^3+6\,\dot{H}$ | |
| | **Jollyte** | $(\frac{1}{3}(\dot{F}e\,\dot{M}g)^3+\frac{2}{3}\,\ddot{A}l)^2\,\ddot{S}i^3+4\,\dot{H}$ | |
| | | *III. SUBSILICATES.* | |
| | | I. CHLORITE GROUP. | |
| | **Pyrosclerite** | $(\frac{2}{3}\,\dot{M}g^3+\frac{1}{3}\,\ddot{A}l)^2\,\ddot{S}i^3+3\,\dot{H}$ | 4? |
| | **Chonicrite** | $(\frac{2}{5}\,(\dot{C}a,\,\dot{M}g)^3+\frac{2}{5}\,\ddot{A}l)^2\,\ddot{S}i^3+3\,\dot{H}$ | |
| | **Jefferisite†** | $(\frac{2}{5}\,\dot{M}g^3+\frac{3}{5}(\ddot{A}l\,\dot{F}e))^2\,\ddot{S}i^3+3\,\dot{H}$ | 3? |
| | **Penninite*** | $8\,(\dot{M}g^3\,\ddot{A}l),\ 9\,\ddot{S}i,\ 12\,\dot{H}$ | 6 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Ripidolite*** | 5 Ṁg, Ä̇l, 3 S̈i, 4 Ḣ | 4 |
| | **Leuchtenbergite** | ($\frac{3}{5}$ Ṁg$^3$+$\frac{2}{5}$ Ä̇l) S̈i+1$\frac{1}{3}$ Ḣ | 6 |
| | **Prochlorite*** | ($\frac{4}{7}$(Ṁg Ḟe)$^3$+$\frac{3}{7}$ Ä̇l) S̈i+$\frac{4}{3}$ Ḣ | 6 ? |
| | **Cronstedtite** | ($\frac{1}{3}$(Ḟe Ṁn)$^3$+$\frac{1}{3}$ Ḟe) S̈i+$\frac{2}{3}$ Ḣ | 6 |
| | II. CHLORITOID GROUP. | | |
| | **Corundophilite†** | ($\frac{1}{3}$(Ṁg Ḟe)$^3$+$\frac{1}{3}$ Ä̇l)$^4$ S̈i$^3$+5 Ḣ | 4 |
| | **Chloritoid*** | ($\frac{1}{4}$(Ḟe Ṁg)$^3$+$\frac{3}{4}$ Ä̇l)$^4$ S̈i$^3$+3 Ḣ | 5 ? |
| | **Margarite*** | ($\frac{1}{4}$ (Ċa Ḣ)$^3$+$\frac{3}{4}$ Ä̇l)$^4$ S̈i$^3$ | 3 |
| | **Thuringite*** | ($\frac{1}{3}$(Ḟe Ḣ)$^3$+$\frac{1}{3}$(Ä̇l Ḟe))$^4$ S̈i$^3$+4 Ḣ | |
| | III. SEYBERTITE GROUP. | | |
| | **Seybertite*** | ($\frac{2}{5}$(Ċa Ṁg Ḟe)$^3$+$\frac{3}{5}$ Ä̇l)$^2$ S̈i+$\frac{1}{5}$ Ḣ | 3 |
| | | *Appendix.* | |
| | **Wolchonskoite** | Ṁg, Ä̇l, C̈r, Ḟe, S̈i, Ḣ | |
| | **Pimelite** | Ṅi, Ä̇l, Ḟe, S̈i, Ḣ | |
| | **Chlorophæite** | Ḟe S̈i+6 Ḣ ? | |
| | **Chamoisite** | Ḟe, Ä̇l, S̈i, Ḣ | |
| | | POTASSIUM | |
| | **Nitre*** | K̇ N̈ | 3 |
| | **Aphthitalite** | K̇ S̈ | 3 |
| | **Misenite** | K̇ S̈+Ḣ S̈ | |
| | **Taylorite** | ($\frac{5}{6}$ K̇+$\frac{1}{6}$ ṄH$^4$) S̈ | |
| | **Picromerite** | K̇ S̈+Ṁg S̈+6 Ḣ | 4 |
| | **Cyanochroite** | ($\frac{1}{3}$ K̇+$\frac{1}{3}$ Ċu) S̈+3 Ḣ | 4 |
| | **Sylvite** | KCl | 1 |
| | | SODIUM. | |
| | **Soda nitre** | Ṅa N̈ | 6 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Thenardite** | $\dot{N}a\,\ddot{S}$ | 3 |
| | **Mirabilite*** | $\dot{N}a\,\ddot{S}+10\,\dot{H}$ | 4 |
| | **Lecontite** | $(\dot{K}\,\dot{N}a\,\dot{N}H^4)\,\ddot{S}+2\,\dot{H}$ | 3 |
| | **Glauberite*** | $(\frac{1}{2}\,\dot{N}a+\frac{1}{2}\,\dot{C}a)\,\ddot{S}$ | 4 |
| | **Lœweite** | $(\frac{1}{2}\,\dot{N}a+\frac{1}{2}\,\dot{M}g)\ddot{S}+1\frac{1}{2}\,\dot{H}$ | 2 |
| | **Halite*** | NaCl | 1 |
| | **Stercorite** | $\dot{N}a\,\dot{N}H^4\,\ddot{P}+9\,\dot{H}$ | |
| | **Borax*** | $\dot{N}a\,\ddot{B}^2+10\,\dot{H}$ | 4 |
| | **Thermonatrite*** | $\dot{N}a\,\ddot{C}+\dot{H}$ | 3 |
| | **Natron*** | $\dot{N}a\,\ddot{C}+10\,\dot{H}$ | 4 |
| | **Trona*** | $\dot{N}a^2\,\ddot{C}^3+4\,\dot{H}$ | 4 |
| | **Gay-Lussite*** | $\dot{N}a\,\ddot{C}+\dot{C}a\,\ddot{C}+5\,\dot{H}$ | 4 |
| | | AMMONIUM. | |
| | **Mascagnite*** | $\dot{N}H^4\,\ddot{S}+\dot{H}$ | 3 |
| | **Sal ammoniac** | $NH^4\,Cl$ | 1 |
| | **Struvite** | $\dot{N}H^4\,\dot{M}g^2\,\ddot{P}+12\,\dot{H}$ | 3 |
| | **Larderellite** | $\dot{N}H^4\,\ddot{B}^4+4\,\dot{H}$ | |
| | **Teschemacherite** | $(\frac{1}{2}\,\dot{N}H^4+\frac{1}{2}\,\dot{H})\,\ddot{C}$ | |
| | | BARIUM. | |
| | **Barite*** | $\dot{B}a\,\ddot{S}$ | 3 |
| | **Dreclite** | $\dot{C}a\,\ddot{S}+3\,\dot{B}a\,\ddot{S}$ | 6 |
| | **Witherite*** | $\dot{B}a\,\ddot{C}$ | 3 |
| | **Bromlite** | $\dot{B}a\,\ddot{C}+\dot{C}a\,\ddot{C}$ | 3 |
| | **Barytocalcite** | $\dot{B}a\,\ddot{C}+\dot{C}a\,\ddot{C}$ | 4 |
| | | STRONTIUM. | |
| | **Celestite*** | $\dot{S}r\,\ddot{S}$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Strontianite*** | $\dot{S}r\,\ddot{C}$ | 3 |
| | | CALCIUM. | |
| | **Nitrocalcite*** | $\dot{C}a\,\ddot{N}+\dot{H}$ | |
| | **Anhydrite*** | $\dot{C}a\,\ddot{S}$ | 3 |
| | **Gypsum*** | $\dot{C}a\,\ddot{S}+2\,\dot{H}$ | 4 |
| | **Polyhalite** | $(\dot{K}\,\dot{M}g\,\dot{C}a)\,\ddot{S}+\frac{1}{2}\,\dot{H}$ | 3 ? |
| | **Fluorite*** | Ca F | 1 |
| | **Apatite*** | $\dot{C}a^3\,\ddot{P}+\frac{1}{3}$ Ca (Cl, F) | 6 |
| | **Brushite** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{C}a)^3\,\ddot{P}+4\,\dot{H}$ | 4 |
| | **Metabrushite** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{C}a)^3\,\ddot{P}+3\,\dot{H}$ | 4 |
| | **Tavistockite** | $(\frac{1}{2}\,\dot{C}a^3+\frac{1}{2}\ddot{A}l)^2\,\ddot{P}+3\,\dot{H}$ | |
| | **Haidingerite** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{C}a)^3\,\ddot{A}s+3\,\dot{H}$ | 3 |
| | **Pharmacolite** | $(\frac{1}{3}\,\dot{H}+\frac{2}{3}\,\dot{C}a)^3\,\ddot{A}s+5\,\dot{H}$ | 4 |
| | **Berzeliite** | $(\dot{C}a\,\dot{M}g\,\dot{M}n)^{10}\,\ddot{A}s^3$ | |
| | **Rhodizite** | $\dot{C}a^3\,\ddot{B}^4$ ? | 1 |
| | **Hydroboracite** | $\dot{C}a^3\,\ddot{B}^4+\dot{M}g^3\,\ddot{B}^4+18\,\dot{H}$ | |
| | **Bechilite** | $(\frac{1}{3}\,\dot{C}a+\frac{1}{3}\,\dot{H})\,\ddot{B}+1\frac{1}{3}\,\dot{H}$ | |
| | **Howlite** | $2(\dot{C}a\,\ddot{B}^2+\dot{H})+\dot{H}^3\,\ddot{B}+2\,\dot{C}a\,\ddot{S}i$ | |
| | **Ulexite*** | $(\frac{1}{2}(\dot{N}a,\,\dot{C}a)+\frac{1}{2}\,\dot{H})\,\ddot{B}+\frac{5}{2}\,\dot{H}$ | |
| | **Cryptomorphite** | $(\frac{1}{2}(\dot{N}a,\,\dot{C}a)+\frac{1}{2}\,\dot{H})\,\ddot{B}+\dot{H}$ ? | |
| | **Aragonite*** | $\dot{C}a\,\ddot{C}$ | 3 |
| | **Calcite*** | $\dot{C}a\,\ddot{C}$ | 6 |
| | **Dolomite*** | $\dot{C}a\,\ddot{C}+\dot{M}g\,\ddot{C}$ | 6 |
| | **Ankerite** | $\dot{C}a\,\ddot{C}+(\dot{M}g\,\dot{F}e\,\dot{M}n)\,\ddot{C}$ | 6 |
| | **Hydrodolomite*** | $(\dot{C}a\,\dot{M}g)\,\ddot{C}+\frac{1}{3}\,\dot{H}$ | |
| | **Predazzite** | $2\,\dot{C}a\,\ddot{C}+\dot{M}g\,\dot{H}$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Pencatite** | Ċa C̈+Ṁg Ḣ | |
| | **Hovite** | $(\frac{1}{3}$ Ċa+$\frac{1}{3}$ Ḣ)C̈+Aq | |
| | **Whewellite** | Ċa C̈ | 4 |
| | **Perofskite** | Ċa T̈i | 1 |
| | **Azorite*** | Ċa C̈b | 2 |
| | **Scheelite** | Ċa Ẅ | 2 |
| | **Microlite†** | Ċa, C̈b (T̈a ?) | 1 |
| | **Cuproscheelite*** | Ċu Ẅ+2 Ċa Ẅ | |
| | **Romeite** | Ċa$^3$, S̈b, S̈b | 2 |
| | | MAGNESIUM. | |
| | **Periclasite** | Ṁg | 1 |
| | **Brucite*** | Ṁg Ḣ | 6 |
| | **Pyroaurite** | $(\frac{2}{3}$ Ṁg$^3$+$\frac{1}{3}$ F̈e) Ḣ$^3$+2 Ḣ | 6 |
| | **Hydrotalcite*** | 6 Ṁg Ḣ+Ä̇l Ḣ$^3$+6 Ḣ | 6 |
| | **Nitromagnesite ?** | Ṁg N̈+n Ḣ | |
| | **Kieserite** | Ṁg S̈+Ḣ | 3 |
| | **Epsomite*** | Ṁg S̈+7 Ḣ | 3 |
| | **Blœdite** | $(\frac{1}{3}$ Ṅa+$\frac{1}{3}$ Ṁg) S̈+2 Ḣ | |
| | **Carnallite** | K Cl+2 Mg Cl+12 Ḣ | |
| | **Tachydrite** | Ca Cl+2 Mg Cl+12 Ḣ | |
| | **Wagnerite** | Ṁg$^3$ P̈+Mg F | 4 |
| | **Bobierrite** | Ṁg$^3$ P̈ +a q | 4 |
| | **Hœrnesite** | Ṁg$^3$ Ä̇s+8 Ḣ | 4 |
| | **Rœsslerite** | $(\frac{2}{3}$ Ṁg+$\frac{1}{3}$ Ḣ)$^3$ Ä̇s+12 Ḣ | |
| | **Boracite** | Ṁg$^3$ B̈$^4$+$\frac{1}{2}$ Mg Cl | 1 |
| | **Szaibelyite** | 3 Ṁg$^5$ B̈$^2$+4 Ḣ | |
| | **Warwickite†** | Ṁg, F̈e, T̈i, B̈ | 4 ? |
| | **Magnesite*** | Ṁg C̈ | 6 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Mesitite** | 2 Ṁg C̈+Ḟe Ċ | 6 |
| | **Hydromagnesite*** | 3(Ṁg C̈+Ḧ)+Ṁg Ḧ | 4 |
| | | ALUMINIUM. | |
| | **Corundum*** | Ä̇l | 6 |
| | **Diaspore*** | Ä̇l Ḧ | 3 |
| | **Gibbsite*** | Ä̇l Ḧ³ | 6 |
| | **Beauxite** | (Ä̇l Ḟe) Ḧ³ | |
| | **Spinel*** | Ṁg Ä̇l | 1 |
| | **Hercynite** | Ḟe Ä̇l | 1 |
| | **Gahnite*** | Ż̇n Ä̇l | 1 |
| | **Chrysoberyl*** | Ḃe Ä̇l | 3 |
| | **Alumian** | Ä̇l S̈² ? | 6 ? |
| | **Alunogen*** | Ä̇l S̈³+18 Ḧ | 4 |
| | **Tschermigite** | N̈H⁴ S̈+Ä̇l S̈³+24 Ḧ | 1 ? |
| | **Kalinite*** | K̇ S̈+Ä̇l S̈³+24 Ḧ | 1 |
| | **Mendozite** | Ṅa S̈+Ä̇l S̈³+23 Ḧ | |
| | **Pickeringite** | Ṁg S̈+Ä̇l S̈³+22 Ḧ | 4 ? |
| | **Apjohnite** | Ṁn S̈+Ä̇l S̈³+24 Ḧ | |
| | **Bosjemanite*** | (Ṁg Ṁn) S̈+Ä̇l S̈³+22 Ḧ | 4 ? |
| | **Halotrichite*** | Ḟe S̈+Ä̇l S̈³+22 Ḧ | |
| | **Aluminite** | Ä̇l S̈+9 Ḧ | |
| | **Alunite** | K̇ S̈+3 Ä̇l S̈+6 Ḧ | 6 |
| | **Loewigite** | K̇ S̈+3 Ä̇l S̈+9 Ḧ | |
| | **Paraluminite** | Ä̇l² S̈+15 Ḧ | |
| | **Pissophanite** | (Ä̇l, Ḟe)⁶ S̈²+30 Ḧ | |
| | **Felsobanyite** | Ä̇l³ S̈+10 Ḧ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Fluellite** | Al, F, | 3 |
| | **Cryolite** | 3 Na F+Al² F³ | 5 |
| | **Arksutite** | (Na Ca)² F+Al² F³ | |
| | **Chiolite** | 3 Na F+2 Al² F³ | 2 |
| | **Chodneffite** | 2 Na F+Al² F³ | |
| | **Pachnolite** | 3(Na Ca) F+Al² F³+2 Ḣ | 4 |
| | **Thomsenolite** | 2(Na Ca) F+Al² F³+2 Ḣ | 4 |
| | **Gearksutite** | Ca² F+Al² F³+4 Ḣ | |
| | **Prosopite** | ⅔ Si F², Ȧl F³, 5 Ä̇l, 2 Ca F, 4 Ċa, 12 Ḣ | 4 |
| | **Amblygonite*** | [¼(Li, Ṅa)³+¾ Ä̇l]⁴ P̈ | 5 |
| | **Herderite** | Ċa, Ä̇l, P̈, F | 3 |
| | **Berlinite** | Ä̇l P̈+½ Ḣ | |
| | **Callainite** | Ä̇l P̈+5 Ḣ | |
| | **Augelite** | Ä̇l²P̈+3 Ḣ | |
| | **Lazulite*** | Ä̇l P̈+Ṁg Ḣ | 4 |
| | **Barrandite** | (⅛ F̈e+⅞ Ä̇l) P̈+4 Ḣ | |
| | **Trolleite** | Ä̇lP̈+⅛ Ä̇l Ḣ³ | |
| | **Cirrolite** | Ä̇l² P̈+2 Ċa³ P̈+3 Ḣ | |
| | **Turquois*** | Ä̇l² P̈+5 Ḣ | |
| | **Peganite** | Ä̇l² P̈+6 Ḣ | 3 |
| | **Fischerite*** | Ä̇l² P̈+8 Ḣ | 3 |
| | **Evansite** | Ä̇l² P̈+Ä̇l Ḣ³+15 Ḣ | |
| | **Wavellite*** | Ä̇l³P̈²+12 Ḣ | 3 |
| | **Sphærite** | Ä̇l⁵ P̈²+16 Ḣ | |
| | **Svanbergite** | 3(⅓ Ċa³+⅓ Ä̇l)² P̈+5 Ä̇l S̄+Ä̇l Ḣ³+15 Ḣ | 6 |
| | **Durangite** | [¼(Li, Ṅa)³+¾(Ä̇l, F̈e)] Ās̈ | 4 |
| | **Mellite** | Ä̇l M̄³+18 Ḣ | 2 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | ZIRCONIUM. | |
| | **Polymignite** | Ti, Ca, Y, Zr, Ce, Fe, Mn | 3 |
| | **Pyrrhite** | Zr, Cb ? | 1 |
| | | YTTRIUM. | |
| | **Xenotime*** | $Y^3 P$ | 2 |
| | **Tengerite** | Y C | |
| | **Yttrotantalite** | $(Ca\ Y\ Fe\ U)^{10} Ta^3$ | 3 |
| | **Euxenite** | Ca, Y, Ce, La, U, Ti, Ta, Cb | 3 |
| | **Fergusonite** | $[(Ca\ Fe\ U\ Ce\ Y)^2\ (Sn\ Zr)]^5\ Cb^2$ | 2 |
| | | CERIUM. | |
| | **Yttrocerite*** | Ca F, Ce F, Y F | |
| | **Fluocerite** | $Ce\ F + Ce^2\ F^3$ | 6 |
| | **Cryptolite** | $Ce^3\ P$ | |
| | **Monazite*** | $(Ce\ La\ Di\ Th^{\frac{1}{2}})^3 P$ | 4 |
| | **Churchite** | $(\frac{5}{6}\ Ce + \frac{1}{6}\ Ca)^3\ P + 4\ H$ | 4 ? |
| | **Rutherfordite †** | Ca, Ce, Ti ? | 4 |
| | **Pyrochlore** | $(Ca\ Ce)^2\ Cb$ ? | 1 |
| | **Æschynite** | Ce, La, Y, Fe, Ti, Ta, Cb | 3 |
| | | LANTHANUM. | |
| | **Parisite** | $(Ce\ La\ Di)\ C + \frac{1}{3}\ (Ca\ Ce)\ F$ | 6 |
| | **Kischtimite** | $6\ La\ C + Ce + Ce^2\ F^3 + 2\ H$ | |
| | **Lanthanite*** | $La\ C + 3\ H$ | 3 |
| | | IRON. | |
| | **Native Iron*** | Fe | 1 |
| | **Magnetite*** | Fe Fe | 1 |
| | **Magnesioferrite** | Mg Fe | 1 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Hematite*** | $\dot{F}e$ | 6 |
| | **Franklinite*** | ($\dot{F}e$ $\dot{Z}n$ $\dot{M}n$) ($\dot{F}e$ $\dot{M}n$) | 1 |
| | **Turgite*** | $\dot{F}e^2$ $\dot{H}$ | |
| | **Goethite*** | $\dot{F}e$ $\dot{H}$ | 3 |
| | **Limonite*** | $\dot{F}e^2$ $\dot{H}^3$ | |
| | **Xanthosiderite** | $\dot{F}e$ $\dot{H}^2$ | |
| | **Limnite** | $\dot{F}e$ $\dot{H}^3$ | |
| | **Troilite** | Fe S | |
| | **Pyrrhotite*** | $Fe^7$ $S^8$ | 6 |
| | **Pyrite*** | Fe $S^2$ | 1 |
| | **Marcasite*** | Fe $S^2$ | 3 |
| | **Pentlandite** | ($\frac{1}{3}$ Ni+$\frac{2}{3}$ Fe) S | 1 |
| | **Pettkoite** | ($\dot{F}e^3$ $\dot{F}e$) $\ddot{S}^3$ | 1 |
| | **Tauriscite** | $\dot{F}e$ $\ddot{S}$+7 $\dot{H}$ ? | 3 |
| | **Melanterite*** | $\dot{F}e$ $\ddot{S}$+7 $\dot{H}$ | 4 |
| | **Pisanite** | ($\dot{F}e$ $\dot{C}u$) $\ddot{S}$+7 $\dot{H}$ | |
| | **Coquimbite** | $\dot{F}e$ $\ddot{S}^3$+9 $\dot{H}$ | 6 |
| | **Voltaite** | $\dot{F}e$ $\ddot{S}$+$\dot{F}e$ $\ddot{S}^3$+24 $\dot{H}$ | 1 |
| | **Rœmerite** | $\dot{F}e$ $\ddot{S}$+$\dot{F}e$ $\ddot{S}^3$+12 $\dot{H}$ | 4 |
| | **Copiapite** | $\dot{F}e^3$ $\ddot{S}^5$ +18 $\dot{H}$ | 6 ? |
| | **Raimondite** | $\dot{F}e^3$ $\ddot{S}^3$+7 $\dot{H}$ | 6 |
| | **Fibroferrite** | $\dot{F}e^3$ $\ddot{S}^5$+27 $\dot{H}$ | |
| | **Apatelite** | $\dot{F}e^3$ $\ddot{S}^5$+2 $\dot{H}$ | |
| | **Botryogen** | $\dot{F}e^3$ $\ddot{S}^2$+3 $\dot{F}e$ $\ddot{S}^2$+36 $\dot{H}$ | 4 |
| | **Jarosite*** | ($\dot{K}$, $\dot{N}a$) $\ddot{S}$+4 $\dot{F}e$ $\ddot{S}$+9 $\dot{H}$ | 6 |
| | **Carphosiderite** | ($\frac{2}{3}$ $\dot{F}e$+$\frac{1}{3}$ $\dot{H}^3$) $\ddot{S}$+ 2 $\dot{H}$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Glockerite** | $\dot{F}e^2\,\ddot{S}+6\,\dot{H}$ | |
| | **Schreibersite*** | Fe, Ni, P | |
| | **Triphylite*** | $(\dot{F}e\,\dot{M}n\,\dot{L}i)^3\,\ddot{P}$ | 3 |
| | **Vivianite*** | $\dot{F}e^3\,\ddot{P}+8\,\dot{H}$ | 4 |
| | **Childrenite** | $2\,(\dot{F}e\,\dot{M}n)^4\,\ddot{P}+\ddot{A}l^2\,\ddot{P}+15\,\dot{H}$ | 3 |
| | **Dufrenite** | $\dot{F}e^3\,\ddot{P}+3\,\dot{H}$ | 3 |
| | **Cacoxenite** | $\dot{F}e^3\,\ddot{P}+12\,\dot{H}$ | |
| | **Borickite** | $(\dot{C}a^3\,\dot{F}e)^5\,\ddot{P}^2+15\,\dot{H}$ | |
| | **Diadochite** | $\dot{F}e^3\,\ddot{P}^2+2\,\dot{F}e\,\ddot{S}^2+32\,\dot{H}$ | |
| | **Beudantite** | Fe, Pb, Cu, H, S, P, As | 6 |
| | **Leucopyrite*** | $Fe\,As^2$ | 3 |
| | **Loelingite** | $Fe\,As+Fe\,As^2$ | 3 |
| | **Arsenopyrite*** | $Fe\,S^2+Fe\,As^2$ | 3 |
| | **Pacite** | $Fe\,S^2+4\,Fe\,As^2$ | 3 |
| | **Carminite** | $5\,\dot{F}e\,\ddot{A}s+\dot{P}b^3\,\ddot{A}s$ | 3 |
| | **Symplesite** | $\dot{F}e^3\,\ddot{A}s+8\,\dot{H}$ | 4 |
| | **Scorodite*** | $\dot{F}e\,\ddot{A}s+4\,\dot{H}$ | 3 |
| | **Pharmacosiderite** | $3\,\dot{F}e\,\ddot{A}s+\dot{F}e\,\dot{H}^3+12\,\dot{H}$ | 1 |
| | **Arseniosiderite** | $\dot{C}a^6\,\ddot{A}s+4\,\dot{F}e^2\,\ddot{A}s+15\,\dot{H}$ | |
| | **Pitticite** | $\dot{F}e\,\ddot{A}s+\dot{F}e\,\ddot{S}+15\,\dot{H}$ | |
| | **Molysite** | $Fe^2\,Cl^3$ | |
| | **Kremersite** | $K\,Cl+NH^4\,Cl+Fe^2\,Cl^3+3\,\dot{H}$ | 1 |
| | **Siderite*** | $\dot{F}e\,\ddot{C}$ | 6 |
| | **Pistomesite** | $\dot{M}g\,\ddot{C}+\dot{F}e\,\ddot{C}$ | 6 |
| | **Chromite*** | $\dot{F}e\,\ddot{C}r$ | 1 |
| | **Lagonite** | $\dot{F}e\,\ddot{B}^3+3\,\dot{H}$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Menaccanite*** | (Ḟe, Ṁn, Ṁg) T̈i+n Ḟe | 6 |
| | **Mengite** | Ḟe, T̈i, Żr | 3 |
| | **Parathorite†** | Ḟe, T̈i ? | 3 |
| | **Tantalite** | (Ḟe Ṁn) T̈a | 3 |
| | **Columbite** | (Ḟe Ṁn) (C̈b T̈a) | 3 |
| | **Tapiolite** | Ḟe$^5$ T̈a$^4$ | 2 |
| | **Hielmite** | Ċa, Ẏ, Ṁg, Ḟe, U̇, Ṡn, T̈a, Ẅ, Ṁn, Ḣ | |
| | **Adelpholite** | Ḟe, Ṁn, C̈b, Ḣ | 2 |
| | **Wolframite*** | (Ḟe Ṁn) Ẅ | 3 |
| | **Ferberite** | (Ḟe Ṁn)$^4$ Ẅ$^3$ | |
| | **Humboldtine** | 2 Ḟe Ö+3 Ḣ | |
| | | MANGANESE. | |
| | **Hausmannite*** | Ṁn$^2$ Ṁn | 2 |
| | **Braunite*** | 2 Ṁn$^2$ Ṁn+Ṁn S̈i | 2 |
| | **Pyrolusite*** | Ṁn | 3 |
| | **Manganite** | M̈n Ḣ | 3 |
| | **Pyrochroite** | (Ṁn, Ṁg) Ḣ | |
| | **Psilomelane*** | (Ḃa Ṁn) Ṁn$^2$+Ḣ | |
| | **Wad*** | (Ḟe Ba Ċo Ċu) Ṁn+Ḣ | |
| | **Crednerite** | Ċu$^3$ M̈n$^2$ | 4 |
| | **Alabandite** | Mn S | 1 |
| | **Hauerite** | Mn S$^2$ | 1 |
| | **Fauserite** | Ṁg S̈+2 Ṁn S̈+15 Ḣ | 3 |
| | **Hureaulite** | (Ḟe Ṁn)$^5$ P̈$^2$+5 Ḣ | 4 |
| | **Triplite** | (Ḟe Ṁn)$^3$ P̈+(Ca Mg Fe) F | 3 |
| | **Kaneite** | Mn As | |

| No | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Chondrarsenite** | $\dot{M}n^5\,\ddot{A}s+2\frac{1}{2}\,\dot{H}$ | |
| | **Rhodochrosite** | $\dot{M}n\,\ddot{C}$ | 6 |
| | **Manganocalcite** | $(\dot{C}a\,\dot{M}g)\,\ddot{C}+2\,\dot{M}n\,\ddot{C}$ | 3 ? |
| | **Sussexite†** | $(\dot{M}g\,\dot{M}n)^2\,\ddot{B}+\dot{H}$ | |
| | **Huebnerite†** | $\dot{M}n\,\ddot{W}$ | 3 |
| | **Megabasite** | $(\dot{M}n\,\dot{F}e\,\dot{C}a)^4\,\ddot{W}^3$ | 3 |
| | | COBALT. | |
| | **Sycpoorite** | $Co\,S$ | |
| | **Linnæite*** | $2\,Co\,S+Co\,S^2$ | 1 |
| | **Carrollite** | $Co^2\,S^3+Cu\,S$ | 1 |
| | **Bieberite** | $\dot{C}o\,\ddot{S}+7\,\dot{H}$ | 4 |
| | **Skutterudite** | $Co\,As^3$ | 1 |
| | **Smaltite*** | $(Co\,Fe\,Ni)\,As^2$ | 1 |
| | **Cobaltite** | $Co\,S^2+Co\,As^2$ | 1 |
| | **Glaucodot** | $(Co\,Fe)\,S^2+(Co\,Fe)\,As^2$ | 3 |
| | **Erythrite*** | $\dot{C}o^3\,\ddot{A}s+8\,\dot{H}$ | 4 |
| | **Remingtonite†** | $\dot{C}o,\,\ddot{C},\,\dot{H}$ | |
| | | NICKEL. | |
| | **Bunsenite** | $\dot{N}i$ | 1 |
| | **Millerite*** | $Ni\,S$ | 6 |
| | **Gruenauite** | $S,\,Ni,\,Bi,\,Fe,\,Co,\,Cu,\,Pb$ | 1 |
| | **Morenosite*** | $\dot{N}i\,\ddot{S}+7\,\dot{H}$ | |
| | **Niccolite*** | $Ni\,As$ | 6 |
| | **Rammelsbergite** | $Ni\,As^2$ | 3 |
| | **Gersdorffite*** | $Ni\,S^2+Ni\,As^2$ | 1 |
| | **Ullmannite** | $Ni\,S^2+Ni\,(Sb\,As)^2$ | 1 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Corynite** | Ni $S^2$+Ni (Sb, As) $S^2$ | 1 |
| | **Annabergite*** | $\dot{N}i^3$ $\ddot{A}s$+8 $\dot{H}$ | 4 |
| | **Cabrerite** | (Mg $\dot{N}i$ $\dot{C}o)^3$ $\ddot{A}s$+8 $\dot{H}$ | 4 |
| | **Breithauptite*** | Ni Sb | 6 |
| | **Zaratite** | $\dot{N}i$ $\ddot{C}$+2 $\dot{N}i$ $\dot{H}$+4 $\dot{H}$ | |
| | | ZINC. | |
| | **Zinc** | Zn | 6 |
| | **Zincite*** | $\dot{Z}n$ | 6 |
| | **Sphalerite*** | Zn S | 1 |
| | **Wurtzite** | Zn S | 6 |
| | **Voltzite** | 4 Zn S+$\dot{Z}n$ | |
| | **Zinkosite?** | $\dot{Z}n$ $\ddot{S}$? | |
| | **Goslarite** | $\dot{Z}n$ $\ddot{S}$+7 $\dot{H}$ | 3 |
| | **Hopeite** | $\dot{Z}n$, $\dot{C}d$, $\ddot{P}$, $\dot{H}$ | 3 |
| | **Koettigite** | ($\dot{Z}n$ $\dot{C}o$ $\dot{N}i)^3$ $\ddot{A}s$+8 $\dot{H}$ | 4 |
| | **Adamite** | $\dot{Z}n^3$ $\ddot{A}s$+$\dot{Z}n$ $\dot{H}$ | 3 |
| | **Smithsonite*** | $\dot{Z}n$ $\ddot{C}$ | 6 |
| | **Hydrozincite*** | $\dot{Z}n$ $\ddot{C}$+2 $\dot{Z}n$ $\dot{H}$ | |
| | **Aurichalcite*** | 3 $\dot{Z}n$ $\dot{H}$+2 $\dot{C}u$ $\ddot{C}$ | |
| | | CADMIUM. | |
| | **Greenockite*** | Cd S | 6 |
| | | TIN. | |
| | **Tin** | Sn | 2 |
| | **Cassiterite*** | $\ddot{S}n$ | 2 |
| | **Stannite** | 2(Cu Fe Zn) S+Sn $S^2$ | 2? |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | TITANIUM. | |
| | **Rutile*** | $\dot{T}i$ | 2 |
| | **Octahedrite*** | $\dot{T}i$ | 2 |
| | **Brookite*** | $\dot{T}i$ | 3 |
| | | LEAD. | |
| | **Lead*** | Pb | 1 |
| | **Massicot*** | $\dot{P}b$ | 3 |
| | **Minium*** | $\ddot{P}b+2\,\dot{P}b$ | |
| | **Plattnerite ?** | $\ddot{P}b$ | 6 ? |
| | **Galenite*** | Pb S | 1 |
| | **Sartorite** | $Pb\,S+As^2\,S^3$ | 3 |
| | **Geocronite*** | $5\,Pb\,S+(Sb\,As)^2\,S^3$ | 3 |
| | **Dufrenoysite** | $2\,Pb\,S+As^2\,S^3$ | 3 |
| | **Zinkenite** | $Pb\,S+Sb^2\,S^3$ | 3 |
| | **Boulangerite** | $3\,Pb\,S+Sb^2\,S^3$ | |
| | **Plagionite** | $Pb\,S+Sb^2\,S^3+\frac{1}{4}\,Pb\,S$ | 4 |
| | **Jamesonite** | $2\,(Fe\,Pb)\,S+Sb^2\,S^3$ | 3 |
| | **Bournonite** | $3(Pb\,Cu)\,S+Sb^2\,S^3$ | 3 |
| | **Kobellite** | $3\,Pb\,S+(Bi\,Sb)^2\,S^3$ | |
| | **Meneghinite** | $4\,Pb\,S+Sb^2\,S^3$ | 4 |
| | **Clayite ?** | Cu, Pb, S, As, Sb | 1 |
| | **Anglesite*** | $\dot{P}b\,\ddot{S}$ | 3 |
| | **Leadhillite*** | $\dot{P}b\,\ddot{S}+3\,\dot{P}b\,\ddot{C}$ | 3 |
| | **Lanarkite** | $\dot{P}b\,\ddot{S}+\dot{P}b\,\ddot{C}$ | 4 |
| | **Susannite** | $\dot{P}b\,\ddot{S}+3\,\dot{P}b\,\ddot{C}$ | 6 |
| | **Caledonite*** | $3\,\dot{P}b\,\ddot{S}+2\,\dot{P}b\,\ddot{C}+\dot{C}u\,\ddot{C}$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Linarite** | $\dot{P}b\,\ddot{S}+\dot{C}u\,\dot{H}$ | 4 |
| | **Lamprophanite** | $\dot{N}a, \dot{K}, \dot{C}a, \dot{M}g, \dot{M}n, \dot{P}b, \ddot{S}, \dot{H}$ | |
| | **Clausthalite** | Pb Se | 1 |
| | **Zorgite** | Pb Se+Cu Se | |
| | **Lehrbachite** | Pb, Hg, Se | |
| | **Altaite** | Pb Te | 1 |
| | **Nagyagite** | 2 (Pb Au)+3 (Te Sb S) | 2 |
| | **Cotunnite** | Pb Cl | 3 |
| | **Matlockite** | Pb Cl+$\dot{P}b$ | 2 |
| | **Mendipite** | Pb Cl+2 $\dot{P}b$ | 3 |
| | **Schwartzembergite** | Pb I+2 $\dot{P}b$ | 6 |
| | **Percylite** | (Pb Cl+$\dot{P}b$ )+(Cu Cl+$\dot{C}u$)+$\dot{H}$ | 1 |
| | **Pyromorphite*** | $3\,\dot{P}b^3\,\ddot{P}$+Pb Cl | 6 |
| | **Plumbogummite** | $\dot{P}b^3\,\ddot{P}+6\,\ddot{A}l\,\dot{H}^3$ | |
| | **Mimetite*** | $3\,\dot{P}b^3\,\ddot{A}s$+Pb Cl | 6 |
| | **Monimolite** | $(\dot{C}a\,\dot{M}g\,\dot{F}e\,\dot{M}n\,\dot{P}b)^4\,\ddot{S}b$ | 2 |
| | **Bindheimite** | $\dot{P}b^3\,\ddot{S}b+4\,\dot{H}$ | |
| | **Cerussite*** | $\dot{P}b\,\ddot{C}$ | 3 |
| | **Phosgenite** | $\dot{P}b\,\ddot{C}$+Pb Cl | 2 |
| | **Crocoite** | $\dot{P}b\,\ddot{C}r$ | 4 |
| | **Phœnicochroite** | $\dot{P}b^3\,\ddot{C}r^2$ | 3? |
| | **Vauquelinite** | $\dot{C}u^3\,\ddot{C}r^2+2\,\dot{P}b^3\,\ddot{C}r^2$ | 4 |
| | **Stolzite*** | $\dot{P}b\,\ddot{W}$ | 2 |
| | **Wulfenite*** | $\dot{P}b\,\ddot{M}o$ | 2 |
| | **Dechenite** | $\dot{P}b\,\ddot{V}$ | |
| | **Descloizite*** | $\dot{P}b^2\,\ddot{V}$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Vanadinite** | $\dot{P}b^3\ \ddot{V}+\frac{1}{3}$ Pb Cl | 6 |
| | | BISMUTH. | |
| | **Bismuth*** | Bi | 6 |
| | **Bismite** | $\bar{B}i$ | |
| | **Karelinite** | $\bar{B}i$ with Bi S | |
| | **Bismuthinite*** | $Bi^2\ S^3$ | 3 |
| | **Emplectite** | $\dot{C}u$ S+$Bi^2\ S^3$ | 3 |
| | **Chiviatite** | (Cu Pb) S+$\frac{3}{2}$ $Bi^2\ S^3$ | |
| | **Wittichenite** | 3 Cu S+$Bi^2\ S^3$ | 3 |
| | **Aikinite*** | (3 Cu S+$Bi^2\ S^3$)+2 (3 Pb S+$Bi^2\ S^3$) | 3 |
| | **Tetradymite*** | $Bi^2$ (Te S)$^3$ | 6 |
| | **Joseite** | $Bi^3$ ($\frac{1}{2}$ Te+$\frac{1}{2}$ (S Se))$^4$ | 6 |
| | **Wehrlite** | Bi (Te S) | 6 |
| | **Montanite*** | $\bar{B}i$ $\ddot{T}e$+2 $\dot{H}$ | |
| | **Alloclasite** | 2 Co $S^2$+Co $As^2$+4 Bi As | 3 |
| | **Bismutite*** | 3 ($\bar{B}i$ $\dot{C}$+$\dot{H}$)+$\bar{B}i$ $\dot{H}$ | |
| | | ARSENIC. | |
| | **Arsenic*** | As | 6 |
| | **Arsenolite*** | $\ddot{A}s$ | 1 |
| | **Claudetite** | $\ddot{A}s$ | 3 |
| | **Realgar** | As S | 4 |
| | **Orpiment*** | $As^2\ S^3$ | 3 |
| | **Dimorphite** | $As^4\ S^3$ | 3 |
| | | ANTIMONY. | |
| | **Antimony*** | Sb | 6 |
| | **Senarmontite** | $\bar{S}b$ | 1 |
| | **Valentinite** | $\bar{S}b$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Cervantite*** | $\dot{S}b+\dot{S}b$ | 3 |
| | **Stibiconite*** | $\dot{S}b+\dot{H}$ | |
| | **Volgerite** | $\dot{S}b+5\ \dot{H}$ | |
| | **Stibnite*** | $Sb^2\ S^3$ | 3 |
| | **Kermesite** | $\dot{S}b+2\ SbS^3$ | 4 |
| | **Berthierite*** | $\dot{F}e\ S+Sb^2\ S^3$ | |
| | **Allemontite** | $Sb\ As^3$ | 6 |
| | | URANIUM. | |
| | **Uraninite** | $\dot{U}\ \ddot{U}$ | 1 |
| | **Eliasite** | $(\dot{F}e\ \ddot{U})\ \dot{H}^3$ | |
| | **Gummite** | $(\dot{F}e\ \ddot{U}\ )\dot{H}^3$ | |
| | **Johannite*** | $[\frac{2}{9}\ (\dot{U}^3\ \ddot{U})+\frac{1}{3}\ \dot{C}u^3]\ \ddot{S}+1\frac{1}{3}\ \dot{H}$ | 4 |
| | **Uranochalcite** | $[\frac{2}{3}\ (\dot{U}^3\ \ddot{U})+\frac{1}{3}\ \dot{C}a^3]\ \ddot{S}+\frac{1}{2}\ \dot{C}u\ \ddot{S}+9\ \dot{H}$ | |
| | **Medjidite** | $(\frac{1}{2}\ \ddot{U}+\frac{1}{3}\ \dot{C}a^3)\ \ddot{S}+7\frac{1}{2}\ \dot{H}$ | |
| | **Zippeite** | $(\ddot{U}\ \dot{C}u^3)^3\ \ddot{S}^2+8\ \dot{H}$ | |
| | **Voglianite** | $4\ (\dot{U}^3\ \ddot{U})^2\ \ddot{S}+(\dot{C}a\ \dot{C}u)\ \ddot{S}+10\ \dot{H}$ | |
| | **Uraconite** | $\ddot{U}^3\ \ddot{S}+14\ \dot{H}$ | |
| | **Torbernite** | $\ddot{U}^2\ \ddot{P}+\dot{C}u\ \dot{H}+7\ \dot{H}$ | 2 |
| | **Autunite*** | $\ddot{U}^2\ \ddot{P}+\dot{C}a\ \dot{H}+7\ \dot{H}$ | 3 |
| | **Liebigite** | $\ddot{U}\ \ddot{C}+\dot{C}a\ \ddot{C}+20\ \dot{H}$ | |
| | **Voglite** | $2\ \dot{U}\ \ddot{C}+2\ \dot{C}a\ \ddot{C}+\dot{C}u^3\ \ddot{C}^2+14\ \dot{H}$ | |
| | **Polycrase** | $\dot{Y}, \ddot{U}, \dot{T}i, \dot{Z}r, \dot{F}e, \dot{C}e, \ddot{C}b$ | 3 |
| | **Samarskite** | $((\dot{F}e\ \dot{Y}\ \dot{C}e)^3\ \ddot{U}\ (\dot{Z}r\ \dot{T}h)\ \frac{3}{2}))^5\ \ddot{C}b_5$ | 3 |
| | | TUNGSTEN. | |
| | **Tungstite*** | $\dot{W}$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | MOLYBDENUM. | |
| | **Molybdite*** | $\ddot{M}o$ | 3 |
| | **Molybdenite*** | $Mo\ S^2$ | 6 ? |
| | | VANADIUM. | |
| | **Vanadic Ochre†?** | $\ddot{V}$ | |
| | | COPPER. | |
| | **Copper*** | $\dot{C}u$ | 1 |
| | **Cuprite*** | $\dot{C}u$ | 1 |
| | **Melaconite*** | $\dot{C}u$ | 1 |
| | **Chalcocite*** | $\dot{C}u\ S$ | 3 |
| | **Cubanite.** | $\dot{C}u\ S+Fe\ S+{}^3Fe\ S^2$ | 1 |
| | **Chalcopyrite*** | $\dot{C}u\ S+Fe\ S+Fe\ S^2$ | 2 |
| | **Barnhardtite*** | $2\ \dot{C}u\ S+Fe\ S+Fe\ S^2$ | |
| | **Covellite** | $\dot{C}u\ S^2$ | 6 |
| | **Chalcostibite** | $\dot{C}u\ S+Sb^2\ S^3$ | 3 |
| | **Binnite** | $\frac{3}{2}\ \dot{C}u\ S+As^2\ S^3$ | 1 |
| | **Stylotypite** | $3\ (Fe\ \dot{C}u\ Ag)\ S+Sb^2\ S^3$ | 3 |
| | **Tetrahedrite[4]** | $4\ \dot{C}u\ S+Sb^2\ S^3$ | 1 |
| | **Tennantite** | $4\ (Fe\ \dot{C}u)\ S+As^2S^3$ | 1 |
| | **Enargite*** | $3\ \dot{C}u\ S+As^2\ S^5$ | 3 |
| | **Bornite*** | $(Fe\ \dot{C}u)\ S$ | 1 |
| | **Castillite** | $(\dot{C}u\ Ag)^2\ S+2\ (Fe\ Zn\ Pb\ Cu)\ S$ | |
| | **Chalcanthite** | $\dot{C}u\ \ddot{S}+5\ \dot{H}$ | 5 |
| | **Brochantite** | $\dot{C}u\ \ddot{S}+2\frac{1}{2}\ \dot{C}u\ \dot{H}$ | 3 |
| | **Langite** | $\dot{C}u\ \ddot{S}+3\ \dot{C}u\ \dot{H}+\dot{H}$ | 3 |
| | **Cyanotrichite** | $3\ \dot{C}u^3\ \ddot{S}+2\ \ddot{A}l\ \dot{H}^3+15\ \dot{H}?$ | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Connellite** | $\dot{Cu}, \ddot{S}, Cl$ | 6 |
| | **Berzelianite** | $\dot{Cu}\ Se$ | |
| | **Eucairite** | $(\dot{Cu}\ Ag)\ Se$ | |
| | **Crookesite** | $(\dot{Cu}\ Tl\ Ag)\ Se$ | |
| | **Atacamite** | $3\ \dot{Cu}\ \dot{H}+Cu\ Cl\ \dot{H}$ | 3 |
| | **Tallingite** | $4\ \dot{Cu}\ \dot{H}+Cu\ Cl\ \dot{H}+3\ aq$ | |
| | **Thrombolite** | $\dot{Cu}^3\ \ddot{P}^2+6\ \dot{H}$ ? | |
| | **Libethenite** | $\dot{Cu}^4\ \ddot{P}+\dot{H}$ | 3 |
| | **Olivenite** | $\dot{Cu}^4\ (\ddot{As}\ \ddot{P})+\dot{H}$ | 3 |
| | **Conichalcite** | $(\dot{Ca}\ \dot{Cu})^3\ (\ddot{As}\ \ddot{P})+\dot{Cu}\ \dot{H}+\frac{1}{2}\ \dot{H}$ | |
| | **Tagilite** | $\dot{Cu}^4\ \ddot{P}+3\ \dot{H}$ | 4 |
| | **Liroconite** | $\dot{Cu}^3\ (\ddot{As},\ \ddot{P})+(\frac{2}{3}\ \ddot{Al}+\frac{1}{3}\ \dot{Cu}^3)\ \dot{H}^3+9\ \dot{H}$ | 4 |
| | **Pseudomalachite*** | $\dot{Cu}^5\ \ddot{P}+3\ \dot{H}$ | 3 |
| | **Domeykite*** | $\dot{Cu}^3\ As^2$ | |
| | **Algodonite*** | $\dot{Cu}^6\ As^2$ | |
| | **Whitneyite*** | $\dot{Cu}^9\ As^2$ | |
| | **Trichalcite** | $\dot{Cu}^3\ \ddot{As}+5\ \dot{H}$ | |
| | **Bayldonite** | $(\dot{Pb}\ \dot{Cu})^4\ \ddot{As}+2\ \dot{H}$ | |
| | **Euchroite** | $\dot{Cu}^4\ \ddot{As}+7\ \dot{H}$ | 3 |
| | **Erinite** | $\dot{Cu}^5\ \ddot{As}+2\ \dot{H}$ | |
| | **Cornwallite** | $\dot{Cu}^5\ \ddot{As}+5\ \dot{H}$ | |
| | **Tyrolite** | $\dot{Cu}^5\ \ddot{As}+9\ \dot{H}$ | 3 |
| | **Clinoclasite** | $\dot{Cu}^6\ \ddot{As}+3\ \dot{H}$ | 4 |
| | **Chalcophyllite** | $\dot{Cu}^6\ \ddot{As}+12\ \dot{H}$ | 6 |
| | **Chenevixite** | $(\dot{Fe}\ \dot{Cu}^3)^2\ \ddot{As}+3\ \dot{H}$ | |
| | **Lindackerite** | $2\ \dot{Cu}^3\ \ddot{As}+\dot{Ni}^3\ \ddot{S}+7\ \dot{H}$ | 3 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Malachite*** | $\dot{C}u^2\,\ddot{C}+\dot{H}$ | 4 |
| | **Azurite*** | $2\,\dot{C}u\,\ddot{C}+\dot{C}u\,\dot{H}$ | 4 |
| | **Volborthite*** | $\dot{C}u, \ddot{V}, \dot{H}$ | 6 |
| | | MERCURY. | |
| | **Mercury*** | Hg | 1 |
| | **Amalgam** | $Ag\,Hg^2$ and $Ag\,Hg^3$ | 1 |
| | **Cinnabar*** | Hg S | 6 |
| | **Tiemannite** | Hg Se | |
| | **Ammiolite** | $\ddot{F}e, \ddot{S}b, \dot{C}u$, Hg, S | |
| | **Calomel** | $Hg^2\,Cl$ | 2 |
| | **Coccinite** | Hg I | |
| | | SILVER. | |
| | **Silver*** | Ag | 1 |
| | **Chilenite** | $Bi\,Ag^6$ | |
| | **Arquerite** | $Ag^6\,Hg$ | 1 |
| | **Argentite*** | Ag S | 1 |
| | **Daleminzite** | Ag S | 3 |
| | **Acanthite** | Ag S | 3 |
| | **Stromeyerite*** | (Cu Ag) S | 3 |
| | **Sternbergite** | $4\,(\frac{3}{4}\,Fe+\frac{1}{4}\,Ag)\,S+Fe\,S^2$ | 3 |
| | **Miargyrite** | $Ag\,S+Sb^2\,S^3$ | 4 |
| | **Brongniardite** | $Pb\,S+Ag\,S+Sb^2\,S^3$ | 1 |
| | **Freieslebenite** | $5\,(Pb\,Ag)\,S+2\,Sb^2\,S^3$ | 4 |
| | **Pyrostilpnite** | Ag, S, Sb | 4 |
| | **Rittingerite** | Ag, S, Sb | 4 |
| | **Pyrargyrite*** | $3\,Ag\,S+Sb^2\,S^3$ | 6 |
| | **Proustite*** | $3\,Ag\,S+As^2\,S^3$ | 6 |

| No. | Name. | Formula. | System of Crystallization. |
|---|---|---|---|
| | **Stephanite*** | $5\,Ag\,S+Sb^2\,S^3$ | 3 |
| | **Polybasite*** | $9\,(6u\,Ag)\,S+(Sb\,As)^2\,S^3$ | 3 |
| | **Xanthoconite** | $(3\,Ag\,S+As^2\,S^5)+2\,(3\,Ag\,S+As^2\,S^3)$ | 6 |
| | **Bolivianite ?** | Ag, S, Sb, | 3 |
| | **Naumannite** | (Ag Pb) Se | 1 |
| | **Hessite*** | Ag Te | 3 |
| | **Cerargyrite*** | Ag Cl | 1 |
| | **Embolite** | Ag (Cl Br) | 1 |
| | **Bromyrite** | Ag Br | 1 |
| | **Iodyrite*** | Ag I | 6 |
| | **Dyscrasite** | $Ag^2\,Sb$ | 3 |
| | | GOLD. | |
| | **Gold*** | Au | 1 |
| | **Gold Amalgam*** | $(Ag\,Au,)^2\,Hg^5$ | |
| | **Sylvanite** | $(Au\,Ag)\,Te^3$ | 4 |
| | **Calaverite*** | $Au\,Te^4$ | |
| | | PLATINUM. | |
| | **Platinum*** | Pt | 1 |
| | | IRIDIUM. | |
| | **Platiniridium*** | Ir, Pt, Rd | 1 |
| | **Iridosmine*** | Ir Os | 6 |
| | | PALLADIUM. | |
| | **Palladium** | Pd | 1 |
| | **Allopalladium** | Pd | 6 |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | | RUTHENIUM. | |
| | **Laurite** | $Ru^{8}\,S^{3}+Os\,S^{8}$ | 1 |
| | | RESINS AND ORGANIC COMPOUNDS. | |
| | | *I. SIMPLE HYDROCARBONS.* | |
| | **Naphtha*** | | |
| | **Scheererite** | | 4 |
| | **Chrismatite** | $C^{2}\,H^{6}$ | |
| | **Pittolium*** | | |
| | **Urpethite** | | |
| | **Hatchettite** | | |
| | **Ozocerite*** | | |
| | **Zietrisikite** | | |
| | **Elaterite*** | | |
| | **Fichtelite** | $C^{5}\,H^{8}$ | 4 |
| | **Hartite** | | 4 |
| | **Koenlite** | $C^{18}\,H^{18}$ | |
| | **Naphthalin** | $C^{10}\,H^{8}$ | 3 |
| | **Idrialite** | | |
| | | *II. OXYGENATED HYDROCARBONS.* | |
| | **Geocerite** | $C^{28}\,H^{56}\,O^{2}$ | |
| | **Geomyricite** | $C^{34}\,H^{68}\,O^{3}$ | |
| | **Copalite** | | |
| | **Succinite** | | |
| | **Walchowite** | | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|
| | **Ambrite** | | |
| | **Bathvillite** | | |
| | **Xyloretinite** | | |
| | **Leucopetrite** | $C^{50}\ H^{84}\ O^{3}$ | |
| | **Euosmite** | | |
| | **Scleretinite** | | |
| | **Pyroretinite** | | |
| | **Rochlederite** | | |
| | **Schlanite** | | |
| | **Guyaquillite** | | |
| | **Middletonite** | | |
| | **Stanekite** | | |
| | **Anthracoxenite** | | |
| | **Tasmanite** | | |
| | **Dysodile** | | |
| | **Hircite** | | |

*III ACID OXYGENATED HYDROCARBONS.*

| | | | |
|---|---|---|---|
| | **Butyrellite** | $C^{32}\ H^{64}\ O^{4}$ | |
| | **Geocerellite** | $C^{25}\ H^{56}\ O^{4}$ | |
| | **Brueckner ellite** | $C^{24}\ H^{44}\ O^{8}$ | |
| | **Succinellite** | $C^{4}\ H^{6}\ O^{4}$ | 3 |
| | **Retinellite** | | |
| | **Dopplerite** | | |
| | **Melanellite** | | |

| No. | Name. | Formula. | System of crystallization. |
|---|---|---|---|

*IV. NITROGENOUS HYDROCARBONS.*

**Asphaltum**

**Mineral Coal**

Anthracite*

Native Coke*

Bituminous Coal*

Jet

Lignite*

APPENDIX.

**Brewsterlinite**

**Cryptolinite**

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