

CRYSTALLOGRAPHIC DATA ON MINERALS

This table contains x-ray crystallographic data on about 400 common minerals, as well as selected crystalline elements. Entries are arranged alphabetically by mineral name. The columns are:

Name: Common name of the mineral.

Formula: Chemical formula for a typical sample of the mineral.

Composition often varies considerably with the origin of the sample.

Crystal system: tricl = triclinic; monocl = monoclinic; orth = orthorhombic; tetr = tetragonal; hex = hexagonal; rhomb = rhombohedral; cubic = cubic.

Structure type: Prototype for the structural arrangement of the crystallographic cell.

Z: Number of formula units per the unit cell.

a, b, c: Lengths of the cell edges in Å (1 Å = 10⁻⁸ cm).

α, β, γ : Angles between cell axes.

References

1. Robie, R.A., Bethke, P.M., and Beardsley, K.M., *U. S. Geological Survey Bulletin 1248*, U. S. Government Printing Office, Washington, D.C.
2. Donnay, J.D.H., and Ondik, H.M., *Crystal Data Determinative Tables, Third Edition, Volume 2, Inorganic Compounds*, Joint Committee on Powder Diffraction Standards, Swarthmore, PA, 1973.
3. Deer, W.A., Howie, R.A., and Zussman, J., *An Introduction to the Rock-Forming Minerals, 2nd Edition*, Longman Scientific & Technical, Harlow, Essex, 1992.

Name	Formula	Crystal system	Structure type	Z	a/Å	b/Å	c/Å	α	β	γ
Acanthite	Ag ₂ S	monocl		4	4.228	6.928	7.862		99.58°	
Acmite (Aegirine)	NaFe(SiO ₃) ₂	monocl	diopside	4	9.658	8.795	5.294		107.42°	
Akermanite	Ca ₂ MgSi ₂ O ₇	tetr	melilite	2	7.8435		5.010			
Alabandite	MnS	cubic	rock salt	4	5.223					
Almandine (Almandite)	Fe ₃ Al ₂ Si ₃ O ₁₂	cubic	garnet	8	11.526					
Altaite	PbTe	cubic	rock salt	4	6.4606					
Aluminum	Al	cubic	copper	4	4.049					
Alunite	KAl ₃ (SO ₄) ₂ (OH) ₆	rhomb		3	6.982		17.32			
Analcite	NaAlSi ₂ O ₆ ·H ₂ O	cubic		16	13.733					
Anatase	TiO ₂	tetr		4	3.785		9.514			
Andalusite	Al ₂ OSiO ₄	orth		4	7.7959	7.8983	5.5583			
Andradite	Ca ₃ Fe ₂ Si ₃ O ₁₂	cubic	garnet	8	12.048					
Anglesite	PbSO ₄	orth	barite	4	8.480	5.398	6.958			
Anhydrite	CaSO ₄	orth	anhydrite	4	6.991	6.996	6.238			
Annite	KFe ₃ [AlSi ₃ O ₁₀](OH) ₂	monocl	1M mica	2	10.29	9.33	5.39		105.1°	
Anorthite	CaAl ₂ Si ₂ O ₈	tricl	primitive cell	8	8.177	12.877	14.169	93.17°	115.85°	91.22°
Anthophyllite	Mg ₇ Si ₈ O ₂₂ (OH) ₂	orth		4	18.61	18.01	5.24			
Antimony	Sb	rhomb	arsenic	6	4.2996		11.2516			
Aragonite	CaCO ₃	orth	aragonite	4	5.741	7.968	4.959			
Arcanite	K ₂ SO ₄	orth	arcanite	4	5.772	10.072	7.483			
Argentite	Ag ₂ S	cubic		2	4.870					
Argentopyrite	AgFe ₂ S ₃	orth		4	6.64	11.47	6.45			
Arsenic	As	rhomb	arsenic	6	3.760		10.555			
Arsenolite	As ₂ O ₃	cubic	diamond	16	11.074					
Arsenopyrite	FeAsS	tricl		4	5.760	5.690	5.785	90.00°	112.23°	90.00°
Azurite	Cu ₃ (OH) ₂ (CO ₃) ₂	monocl		2	5.008	5.844	10.336		92.45°	
Baddeleyite	ZrO ₂	monocl	baddeleyite	4	5.1454	5.2075	5.3107		99.23°	
Banalsite	BaNa ₂ Al ₄ Si ₄ O ₁₆	orth		4	8.50	9.97	16.72			
Barite	BaSO ₄	orth	barite	4	8.878	5.450	7.152			
Berlinite	AlPO ₄	hex	α-quartz	3	4.942		10.97			
Beryl	Be ₃ Al ₂ (SiO ₃) ₆	hex	beryl	2	9.215		9.192			
Berzelianite	Cu ₂ Se	cubic		4	5.85					
Bismite	Bi ₂ O ₃	monocl	pseudo-orth	4	7.48	8.14	5.83		112.9°	
Bismuth	Bi	rhomb	arsenic	6	4.5367		11.8383			
Bismuthinite	Bi ₂ S ₃	orth	stibnite	4	11.150	11.300	3.981			
Bixbyite	Mn ₂ O ₃	cubic	thallium trioxide	16	9.411					
Boehmite	AlO(OH)	orth	lepidocrocite	4	2.868	12.227	3.700			
Borax	Na ₂ B ₄ O ₇ ·10H ₂ O	monocl		4	11.858	10.674	12.197		106.68°	

Name	Formula	Crystal system	Structure type	Z	<i>a</i> /Å	<i>b</i> /Å	<i>c</i> /Å	α	β	γ
Bornite (metastable)	Cu ₅ FeS ₄	cubic		8	10.94					
Breithauptite	NiSb	hex	niccolite	2	3.942		5.155			
Brochantite	Cu ₄ SO ₄ (OH) ₆	monocl		4	13.066	9.85	6.022		103.27°	
Bromargyrite	AgBr	cubic	rock salt	4	5.7745					
Bromellite	BeO	hex	zincite	2	2.6979		4.3772			
Brookite	TiO ₂	orth		8	5.456	9.182	5.143			
Brucite	Mg(OH) ₂	hex	cadmium iodide	1	3.147		4.769			
Bunsenite	NiO	cubic	rock salt	4	4.177					
Bustamite	CaMn(SiO ₃) ₂	tricl		6	7.736	7.157	13.824	90.52°	94.58°	103.87°
Cadmium telluride	CdTe	cubic	sphalerite	4	6.4805					
Cadmoselite	CdSe	hex	zincite	2	4.2977		7.0021			
Calcite	CaCO ₃	rhomb	calcite	6	4.9899		17.064			
Calomel	Hg ₂ Cl ₂	tetr		4	4.478		10.910			
Carbonate-apatite	Ca ₁₀ (PO ₄) ₆ CO ₃ ·H ₂ O	hex	apatite	1	9.436		6.883			
Cassiterite	SnO ₂	tetr	rutile	2	4.738		3.188			
Cattierite	CoS ₂	cubic	pyrite	4	5.5345					
Celestite	SrSO ₄	orth	barite	4	8.359	5.352	6.866			
Celsian	BaAl ₂ Si ₂ O ₈	monocl		8	8.627	13.045	14.408		115.20°	
Cerianite	CeO ₂	cubic	fluorite	4	5.4110					
Cerussite	PbCO ₃	orth	aragonite	4	6.152	8.436	5.195			
Cervantite	Sb ₂ O ₄	orth		4	5.424	11.76	4.804			
Chalcanthite	CuSO ₄ ·5H ₂ O	tricl		2	6.1045	10.72	5.949	97.57°	107.28°	77.43°
Chalcocite	Cu ₂ S	orth		96	11.881	27.323	13.491			
Chalcopyrite	CuFeS ₂	tetr		4	5.2988		10.434			
Chlorapatite	Ca ₅ (PO ₄) ₃ Cl	hex	apatite	2	9.629		6.777			
Chlorargyrite	AgCl	cubic	rock salt	4	5.5491					
Chloritoid	FeAl ₄ O ₂ (SiO ₄) ₂ (OH) ₄	monocl		8	9.48	5.48	18.18		101.77°	
Chloromagnesite	MgCl ₂	rhomb		3	3.632		17.795			
Chondrodite	2Mg ₂ SiO ₄ ·MgF ₂	monocl		2	7.89	4.743	10.29		109.03°	
Chrysoberyl	BeAl ₂ O ₄	orth	olivine	4	5.4756	9.4041	4.4267			
Cinnabar	HgS	hex	cinnabar	3	4.149		9.495			
Claudetite	As ₂ O ₃	monocl		4	5.339	12.984	4.5405		94.27°	
Clausthalite	PbSe	cubic	rock salt	4	6.1255					
Clinoenstatite	MgSiO ₃	monocl		8	9.620	8.825	5.188		108.33°	
Clinoferrosilite	FeSiO ₃	monocl		8	9.7085	9.0872	5.2284		108.43°	
Clinohumite	4Mg ₂ SiO ₄ ·MgF ₂	monocl		2	13.68	4.75	10.27		100.83°	
Clinzoisite	Ca ₂ Al ₃ (SiO ₄) ₃ OH	monocl		2	8.887	5.581	10.14		115.93°	
Cobalt olivine	Co ₂ SiO ₄	orth	olivine	4	4.782	10.301	6.003			
Cobalt oxide	CoO	cubic	rock salt	4	4.260					
Cobalt sulfide	CoS	cubic	sphalerite	4	5.339					
Cobalt titanate	CoTiO ₃	rhomb	ilmenite	6	5.066		13.918			
Cobaltcalcite	CoCO ₃	rhomb	calcite	6	4.6581		14.958			
Cobaltite	CoAsS	cubic	NiSbS	4	5.60					
Coesite	SiO ₂	monocl		16	7.152	12.379	7.152		120.00°	
Coffinite	USiO ₄	tetr	zircon	4	6.995		6.263			
Colemanite	Ca ₂ B ₆ O ₁₁ ·5H ₂ O	monocl		4	8.743	11.264	6.102		110.12°	
Coloradoite	HgTe	cubic	sphalerite	4	6.4600					
Cooperite	PtS	tetr		2	3.4699		6.1098			
Copper	Cu	cubic	face-centered cubic	4	3.6150					
Corundum	Al ₂ O ₃	rhomb	corundum	6	4.7591		12.9894			
Cotunnite	PbCl ₂	orth		4	4.535	7.62	9.05			
Covellite	CuS	hex		6	3.792		16.34			
Cristobalite (α)	SiO ₂	tetr		4	4.971		6.918			
Cristobalite (β)	SiO ₂	cubic		8	7.1382					
Cryolite	Na ₃ AlF ₆	monocl		2	5.40	5.60	7.776		90.18°	
Cubanite	CuFe ₂ S ₃	orth		4	6.46	11.12	6.23			
Cummingtonite	(Mg,Fe,Mn) ₇ (Si ₄ O ₁₁) ₂ (OH) ₂	monocl	tremolite	2	9.522	18.223	5.332		101.92°	
Cuprite	Cu ₂ O	cubic		2	4.2696					
Danburite	CaB ₂ Si ₂ O ₈	orth		4	8.04	8.77	7.74			

Name	Formula	Crystal system	Structure type	Z	<i>a</i> /Å	<i>b</i> /Å	<i>c</i> /Å	α	β	γ
Datolite	CaBSiO ₄ (OH)	monocl		4	9.62	7.60	4.84		90.15°	
Daubreite	FeCr ₂ S ₄	cubic	spinel	8	9.966					
Diamond	C	cubic	diamond	8	3.5670					
Diaspore	AlO(OH)	orth		4	4.401	9.421	2.845			
Dickite	Al ₂ Si ₂ O ₅ (OH) ₄	monocl		4	5.150	8.940	14.736		103.58°	
Digenite	Cu _{1.79} S	cubic	deformed fluorite	4	5.5695					
Diopside	CaMg(SiO ₃) ₂	monocl	diopside	4	9.743	8.923	5.251		105.93°	
Diopside	CuSiO ₂ (OH) ₂	rhomb	phenacite	18	14.61		7.80			
Dolerophanite	Cu ₂ O(SO ₄)	monocl		4	8.334	6.312	7.628		108.4°	
Dolomite	CaMg(CO ₃) ₂	rhomb	calcite	3	4.8079		16.010			
Dravite	NaMg ₃ Al ₆ B ₃ Si ₆ O ₂₇ (OH) ₄	rhomb	tourmaline	3	15.942		7.224			
Elbaite	NaLiAl _{1.67} B ₃ Si ₆ O ₂₇ (OH) ₄	rhomb	tourmaline	3	15.842		7.009			
Enargite	Cu ₃ AsS ₄	orth		2	6.426	7.422	6.144			
Enstatite	MgSiO ₃	orth		16	8.829	18.22	5.192			
Epidote	Ca ₂ Al ₂ (Al,Fe)OH(SiO ₄) ₃	monocl		2	8.89	5.63	10.19		115.40°	
Epsomite	MgSO ₄ ·7H ₂ O	orth		4	11.86	11.99	6.858			
Eskolaite	Cr ₂ O ₃	rhomb	corundum	6	4.9607		13.599			
Eucairite	AgCuSe	orth		10	4.105	20.35	6.31			
Euclase	AlBeSiO ₄ (OH)	monocl		4	4.763	14.29	4.618		100.25°	
Famatimite	Cu ₃ SbS ₄	tetr		2	5.384		10.770			
Fayalite	Fe ₂ SiO ₄	orth	olivine	4	4.817	10.477	6.105			
Fe-Cordierite	Fe ₂ Al ₃ (AlSi ₅ O ₁₈)	orth	cordierite	4	9.726	17.065	9.287			
Fe-Gehlenite	Ca ₂ Fe ₂ SiO ₇	tetr	melilite	2	7.54		4.855			
Fe-Indialite	Fe ₂ Al ₃ (AlSi ₅ O ₁₈)	hex	beryl	2	9.860		9.285			
Fe-Leucite	KFeSi ₂ O ₆	tetr		16	13.205		13.970			
Fe-Microcline	KFeSi ₃ O ₈	tricl		4	8.68	13.10	7.340	90.75°	116.05°	86.23°
Fe-Sanidine	KFeSi ₃ O ₈	monocl		4	8.689	13.12	7.319		116.10°	
Fe-Skutterudite	FeAs _{2.95}	cubic		8	8.1814					
Ferberite	FeWO ₄	monocl	wolframite	2	4.732	5.708	4.965		90.00°	
Ferriannite	KFe ₃ [FeSi ₃ O ₁₀](OH) ₂	monocl		2	5.430	9.404	10.341		100.07°	
Ferroselite	FeSe ₂	orth	marcasite	2	4.801	5.778	3.587			
Ferrotremolite	Ca ₂ Fe ₂ [Si ₈ O ₂₂](OH) ₂	monocl	tremolite	2	9.97	18.34	5.30		104.50°	
Fluor-edenite	NaCa ₂ Mg ₅ [AlSi ₇ O ₂₂]F ₂	monocl	tremolite	2	9.847	18.00	5.282		104.83°	
Fluor-humite	3Mg ₂ SiO ₄ ·MgF ₂	orth		4	10.243	20.72	4.735			
Fluor-norbergite	Mg ₂ SiO ₄ ·MgF ₂	orth		4	8.727	10.271	4.709			
Fluor-phlogopite	KMg ₃ [AlSi ₃ O ₁₀]F ₂	monocl	1M mica	2	5.299	9.188	10.135		99.92°	
Fluor-richterite	Na ₂ CaMg ₅ [Si ₈ O ₂₂]F ₂	monocl	tremolite	2	9.823	17.96	5.268		104.33°	
Fluor-tremolite	Ca ₂ Mg ₅ [Si ₈ O ₂₂]F ₂	monocl	tremolite	2	9.781	18.01	5.267		104.52°	
Fluorapatite	Ca ₅ (PO ₄) ₃ F	hex	apatite	2	9.3684		6.8841			
Fluorite	CaF ₂	cubic	fluorite	4	5.4638					
Forsterite	Mg ₂ SiO ₄	orth	olivine	4	4.758	10.214	5.984			
Frobergite	FeTe ₂	orth	marcasite	2	5.265	6.265	3.869			
Gahnite	ZnAl ₂ O ₄	cubic	spinel	8	8.0848					
Galaxite	MnAl ₂ O ₄	cubic	spinel	8	8.258					
Galena	PbS	cubic	rock salt	4	5.9360					
Gallium oxide	Ga ₂ O ₃	rhomb	corundum	6	4.9793		13.429			
Gehlenite	Ca ₂ Al ₂ SiO ₇	tetr	melilite	2	7.690		5.0675			
Geikielite	MgTiO ₃	rhomb	ilmenite	6	5.054		13.898			
Gerhardite	Cu ₂ (NO ₃)(OH) ₃	orth		4	6.075	13.812	5.592			
Gersdorffite	NiAsS	cubic		4	5.693					
Gibbsite	Al(OH) ₃	monocl		8	9.719	5.0705	8.6412		94.57°	
Glauchroite	CaMnSiO ₄	orth	olivine	4	4.944	11.19	6.529			
Glaucodot	(Co,Fe)AsS	orth		24	6.64	28.39	5.64			
Glaucophanes I	Na ₂ Mg ₂ Al ₂ [Si ₈ O ₂₂](OH) ₂	monocl	tremolite	2	9.748	17.915	5.273		102.78°	
Glaucophanes II	Na ₂ Mg ₂ Al ₂ [Si ₈ O ₂₂](OH) ₂	monocl	tremolite	2	9.663	17.696	5.277		103.67°	
Goethite	FeO(OH)	orth		4	4.596	9.957	3.021			
Gold	Au	cubic	face-centered cubic	4	4.0786					
Goldmanite	Ca ₃ V ₂ Si ₃ O ₁₂	cubic	garnet	8	12.070					
Goslarite	ZnSO ₄ ·7H ₂ O	orth	epsomite	4	11.779	12.050	6.822			

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Graphite	C	hex	graphite	4	2.4612		6.7079			
Greenockite	CdS	hex	zincite	2	4.1354		6.7120			
Greigite	Fe ₃ S ₄	cubic	spinel	8	9.876					
Grossularite	Ca ₃ Al ₂ Si ₃ O ₁₂	cubic	garnet	8	11.851					
Grunerite	Fe ₇ [Si ₈ O ₂₂](OH) ₂	monocl	tremolite	2	9.572	18.44	5.342		101.77°	
Gudmundite	FeSbS	monocl		8	10.00	5.93	6.73		90.00°	
Gypsum	CaSO ₄ ·2H ₂ O	monocl		4	5.68	15.18	6.29		113.83°	
Hafnia	HfO ₂	monocl	baddeleyite	4	5.1156	5.1722	5.2948		99.18°	
Halite	NaCl	cubic	rock salt	4	5.6402					
Hambegite	Be ₂ (OH,F)BO ₃	orth		8	9.755	12.201	4.426			
Hardystonite	Ca ₂ ZnSi ₂ O ₇	tetr	melilite	2	7.87		5.01			
Hauerite	MnS ₂	cubic	pyrite	4	6.1014					
Hausmannite	Mn ₃ O ₄	tetr		8	8.136		9.422			
Hawleyite	CdS	cubic	sphalerite	4	5.833					
Heazlewoodite	Ni ₃ S ₂	rhomb		3	5.746		7.134			
Hedenbergite	CaFe(SiO ₃) ₂	monocl	diopside	4	9.854	9.024	5.263		104.23°	
Hematite	Fe ₂ O ₃	rhomb	corundum	6	5.025		13.735			
Hemimorphite	Zn ₄ (OH) ₂ Si ₂ O ₇ ·H ₂ O	orth		2	8.370	10.719	5.120			
Hercynite	Fe(AlO ₂) ₂	cubic	spinel	8	8.150					
Herzenbergite	SnS	orth	germanium sulfide	4	4.328	11.190	3.978			
Hessite	Ag ₂ Te	monocl		4	8.13	4.48	8.09		111.9°	
Hexahydrite	MgSO ₄ ·6H ₂ O	monocl		8	10.110	7.212	24.41		98.30°	
High albite (Analbite)	NaAlSi ₃ O ₈	tricl		4	8.160	12.870	7.106	93.54°	116.36°	90.19°
High argentite	Ag ₂ S	cubic		4	6.269					
High bornite	Cu ₅ FeS ₄	cubic		1	5.50					
High carnegite	NaAlSiO ₄	cubic		4	7.325					
High chalcocite	Cu ₂ S	hex		2	3.961		6.722			
High clinostatite	MgSiO ₃	tricl		8	10.000	8.934	5.170	88.27°	70.03°	91.01°
High digenite	Cu ₂ S	cubic		4	5.725					
High germania	GeO ₂	hex	α -quartz	3	4.987		5.652			
High leucite	KAlSi ₂ O ₆	cubic		16	13.43					
High naumanite	Ag ₂ Se	cubic		2	4.993					
High sanidine	KAlSi ₃ O ₈	monocl		4	8.615	13.031	7.177		115.98°	
Huebnerite	MnWO ₄	monocl	wolframite	2	4.834	5.758	4.999		91.18°	
Huntite	Mg ₃ Ca(CO ₃) ₄	rhomb	calcite	3	9.498		7.816			
Hydroxylapatite	Ca ₅ (PO ₄) ₃ OH	hex	apatite	2	9.418		6.883			
Ice	H ₂ O	hex		4	4.5212		7.3666			
Ilmenite	FeTiO ₃	rhomb	ilmenite	6	5.093		14.055			
Indialite (Cordierite)	Mg ₂ Al ₃ (AlSi ₅ O ₁₈)	hex	beryl	2	9.7698		9.3517			
Iodargyrite	AgI	hex	zincite	2	4.5955		7.5005			
Iron (α)	Fe	cubic	body-centered cubic	2	2.8664					
Jacobsite	MnFe ₂ O ₄	cubic	spinel	8	8.499					
Jadeite	NaAl(SiO ₃) ₂	monocl	diopside	4	9.409	8.564	5.220		107.50°	
Jalpaite	Ag _{1.55} Cu _{0.45} S	tetr		16	8.673		11.756			
Johannsenite	CaMn(SiO ₃) ₂	monocl	diopside	4	9.83	9.04	5.27		105.00°	
Kaliophilite	KAlSiO ₄	hex		54	26.930		8.522			
Kalsilite	KAlSiO ₄	hex		2	5.1597		8.7032			
Kaolinite	Al ₂ Si ₂ O ₅ (OH) ₄	tricl		2	5.155	8.959	7.407	91.68°	104.87°	89.93°
Karelianite	V ₂ O ₃	rhomb	corundum	6	4.952		14.002			
Keatite	SiO ₂	tetr		12	7.456		8.604			
Kernite	Na ₂ B ₄ O ₇ ·4H ₂ O	monocl		4	7.022	9.151	15.676		108.83°	
Kerschsteinite	CaFeSiO ₄	orth	olivine	4	4.886	11.146	6.434			
Klockmannite	CuSe	hex	deformed covellite	78	14.206		17.25			
Knebelite	MnFeSiO ₄	orth	olivine	4	4.854	10.602	6.162			
Kyanite	Al ₂ OSiO ₄	tricl		4	7.123	7.848	5.564	89.92°	101.25°	105.97°
Larnite	Ca ₂ SiO ₄	monocl		4	5.48	6.76	9.28		94.55°	
Laurite	RuS ₂	cubic	pyrite	4	5.60					

Name	Formula	Crystal system	Structure type	Z	a/Å	b/Å	c/Å	α	β	γ
Lawrencite	FeCl ₂	rhomb		3	3.593		17.58			
Lawsonite	CaAl ₂ Si ₂ O ₇ (OH) ₂ ·H ₂ O	orth		4	8.787	5.836	13.123			
Lead	Pb	cubic	face-centered cubic	4	4.9505					
Leonhardtite	MgSO ₄ ·4H ₂ O	monocl		4	5.922	13.604	7.905		90.85°	
Lepidocrocite	FeO(OH)	orth		4	3.868	12.525	3.066			
Lepidolite	K ₂ Al ₃ Li ₃ AlSi ₇ O ₂₀ (OH) ₄	monocl	2M2 mica	2	9.2	5.3	20.0		98.00°	
Leucite	KAlSi ₂ O ₆	tetr		16	13.074		13.738			
Lime	CaO	cubic	rock salt	4	4.8108					
Lime olivine	Ca ₂ SiO ₄	orth	olivine	4	5.091	11.371	6.782			
Linnaeite	Co ₃ S ₄	cubic	spinel	8	9.401					
Litharge	PbO	tetr		2	3.9759		5.023			
Loellingite	FeAs ₂	orth	marcasite	2	5.300	5.981	2.882			
Low albite	NaAlSi ₃ O ₈	tricl		4	8.139	12.788	7.160	94.27°	116.57°	87.68°
Low bornite	Cu ₅ FeS ₄	tetr		16	10.94		21.88			
Low cordierite	Mg ₂ Al ₃ (AlSi ₅ O ₁₈)	orth		4	9.721	17.062	9.339			
Low germania	GeO ₂	tetr	rutile	2	4.3963		2.8626			
Low nepheline	NaAlSiO ₄	hex		8	9.986		8.330			
Luzonite	Cu ₃ AsS ₄	tetr		2	5.289		10.440			
Mackinawite	FeS	tetr		2	3.675		5.030			
Magnesioriebeckite	Na ₂ Mg ₃ Fe ₂ [Si ₈ O ₂₂](OH) ₂	monocl	tremolite	2	9.733	17.946	5.299		103.30°	
Magnesite	MgCO ₃	rhomb	calcite	6	4.6330		15.016			
Magnetite	Fe ₃ O ₄	cubic	spinel	8	8.3940					
Malachite	Cu ₂ (OH) ₂ CO ₃	monocl		4	9.502	11.974	3.240		98.75°	
Maldonite	Au ₂ Bi	cubic		8	7.958					
Manganese sulfide (γ)	MnS	hex	zincite	2	3.976		6.432			
Manganese sulfide (β)	MnS	cubic	sphalerite	4	5.611					
Manganosite	MnO	cubic	rock salt	4	4.4448					
Marcasite	FeS ₂	orth	marcasite	2	4.443	5.423	3.3876			
Margarite	CaAl ₂ [AlSi ₂ O ₁₀](OH) ₂	monocl	2M mica	4	5.13	8.92	19.50		95.00°	
Marialite	Na ₄ Al ₃ Si ₉ O ₂₄ Cl	tetr		2	12.064		7.514			
Marshite	CuI	cubic	sphalerite	4	6.0507					
Mascagnite	(NH ₄) ₂ SO ₄	orth	arcanite	4	7.782	5.993	10.636			
Massicot	PbO	orth		4	5.489	4.755	5.891			
Matlockite	PbClF	tetr		2	4.106		7.23			
Maucherite	Ni ₁₁ As ₈	tetr		4	6.870		21.81			
Meionite	Ca ₄ Al ₆ Si ₆ O ₂₄ CO ₃	tetr		2	12.174		7.652			
Melanophlogite	SiO ₂	cubic	clathrate type	46	13.402					
Melanterite	FeSO ₄ ·7H ₂ O	monocl		4	14.072	6.503	11.041		105.57°	
Melonite	NiTe ₂	hex	cadmium iodide	1	3.869		5.308			
Metacinnabar	HgS	cubic	sphalerite	4	5.8517					
Miargyrite	AgSbS ₂	monocl		8	12.862	4.111	13.220		98.63°	
Microcline	KAlSi ₃ O ₈	tricl		4	8.582	12.964	7.222	90.62°	115.92°	87.68°
Miersite	AgI	cubic	sphalerite	4	6.4963					
Millerite	NiS	rhomb		9	9.616		3.152			
Minium	Pb ₃ O ₄	tetr		4	8.815		6.565			
Minnesotaite	Fe ₃ Si ₄ O ₁₀ (OH) ₂	monocl		4	5.4	9.42	19.4		100.00°	
Mirabilite	Na ₂ SO ₄ ·10H ₂ O	monocl		4	11.51	10.38	12.83		107.75°	
Mn-Indialite	Mn ₂ Al ₃ (AlSi ₅ O ₁₈)	hex	beryl	2	9.925		9.297			
Molybdenite	MoS ₂	hex	molybdenite	2	3.1604		12.295			
Molybdenum	Mo	cubic		2	3.1653					
Molybdite	MoO ₃	orth		4	3.962	13.858	3.697			
Monteponite	CdO	cubic	rock salt	4	4.6953					
Monticellite	CaMgSiO ₄	orth	olivine	4	4.827	11.084	6.376			
Montroydite	HgO	orth		4	6.608	5.518	3.519			
Mullite (2:1)	2Al ₂ O ₃ ·SiO ₂	orth		6	7.5788	7.6909	2.8883			
Mullite (3:2)	3Al ₂ O ₃ ·2SiO ₂	orth		3	7.557	7.6876	2.8842			
Muscovite	KAl ₂ AlSi ₅ O ₁₀ (OH) ₂	monocl	2M2 mica	4	5.203	8.995	20.030		94.47°	

Name	Formula	Crystal system	Structure type	Z	<i>a</i> /Å	<i>b</i> /Å	<i>c</i> /Å	α	β	γ
Nacrite	Al ₂ Si ₂ O ₅ (OH) ₄	monocl		4	8.909	5.146	15.697		113.70°	
Nantokite	CuCl	cubic	sphalerite	4	5.416					
Natroalunite	NaAl ₃ (SO ₄) ₂ (OH) ₆	rhomb		3	6.974		16.69			
Natrolite	Na ₂ Al ₂ Si ₃ O ₁₀ ·2H ₂ O	orth		8	18.30	18.63	6.60			
Neighborite	NaMgF ₃	orth	perovskite	4	5.363	7.676	5.503			
Ni-Skutterudite	NiAs _{2.95}	cubic		8	8.3300					
Niccolite	NiAs	hex	niccolite	2	3.618		5.034			
Nickel	Ni	cubic	face-centered cubic	4	3.5238					
Nickel carbonate	NiCO ₃	rhomb	calcite	6	4.5975		14.723			
Nickel olivine	Ni ₂ SiO ₄	orth	olivine	4	4.727	10.121	5.915			
Nickel selenide	NiSe ₂	cubic	pyrite	4	5.9604					
Niter	KNO ₃	orth	aragonite	4	6.431	9.164	5.414			
Norsethite	BaMg(CO ₃) ₂	rhomb	calcite	3	5.020		16.75			
Oldhamite	CaS	cubic	rock salt	4	5.689					
Orpiment	As ₂ S ₃	monocl		4	11.49	9.59	4.25		90.45°	
Orthoclase	KAlSi ₃ O ₈	monocl		4	8.562	12.996	7.193		116.02°	
Orthoferrosilite	FeSiO ₃	orth	enstatite	16	9.080	18.431	5.238			
Otavite	CdCO ₃	rhomb	calcite	6	4.9204		16.298			
Paracelsian	BaAl ₂ Si ₂ O ₈	monocl		4	8.58	9.583	9.08		90.00°	
Paragonite	NaAl ₂ AlSi ₃ O ₁₀ (OH) ₂	monocl	2M1 mica	4	5.13	8.89	19.32		95.17°	
Pararammelsbergite	NiAs ₂	orth		8	5.75	5.82	11.428			
Paratellurite	TeO ₂	tetr		4	4.810		7.613			
Parawollastonite	CaSiO ₃	monocl		12	15.417	7.321	7.066		95.40°	
Pectolite	Ca ₂ NaH(SiO ₃) ₃	tricl		2	7.99	7.04	7.02	90.05°	95.27°	102.47°
Pentlandite	Fe _{5.25} Ni _{3.75} S ₈	cubic		4	10.196					
Pentlandite	Fe _{4.75} Ni _{5.25} S ₈	cubic		4	10.095					
Periclase	MgO	cubic	rock salt	4	4.2117					
Perovskite	CaTiO ₃	orth	perovskite	4	5.3670	7.6438	5.4439			
Petalite	LiAlSi ₄ O ₁₀	monocl		2	11.32	5.14	7.62		105.90°	
Petzite	Ag ₃ AuTe ₂	cubic		8	10.38					
Phenacite	Be ₂ SiO ₄	rhomb	phenacite	18	12.472		8.252			
Phlogopite	KMg ₃ AlSi ₃ O ₁₀ (OH) ₂	monocl	1M mica	2	5.326	9.210	10.311		100.17°	
Picrochromite	MgCr ₂ O ₄	cubic	spinel	8	8.333					
Piemontite	Ca ₂ Al _{1.5} Mn _{1.5} (SiO ₄) ₃ OH	monocl		2	8.95	5.70	9.41		115.70°	
Platinum	Pt	cubic	face-centered cubic	4	3.9231					
Polymidite	Ni ₃ S ₄	cubic	spinel	8	9.480					
Portlandite	Ca(OH) ₂	hex	cadmium iodide	1	3.5933		4.9086			
Powellite	CaMoO ₄	tetr	scheelite	4	5.226		11.43			
Protoenstatite	MgSiO ₃	orth		8	9.25	8.74	5.32			
Proustite	Ag ₃ AsS ₃	rhomb		6	10.816		8.6948			
Pseudowollastonite	CaSiO ₃	tricl		24	6.90	11.78	19.65	90.00°	90.80°	90.00°
Pyrargyrite	Ag ₃ SbS ₃	rhomb		6	11.052		8.7177			
Pyrite	FeS ₂	cubic	pyrite	4	5.4175					
Pyrolusite	MnO ₂	tetr	rutile	2	4.388		2.865			
Pyrope	Mg ₃ Al ₂ Si ₃ O ₁₂	cubic	garnet	8	11.459					
Pyrophanite	MnTiO ₃	rhomb	ilmenite	6	5.155		14.18			
Pyrophyllite	Al ₂ Si ₄ O ₁₀ (OH) ₂	monocl	2M1 mica	4	5.14	8.90	18.55		99.92°	
Pyroxmangite	MnFe(SiO ₃) ₂	tricl		7	7.56	17.45	6.67	84.00°	94.30°	113.70°
Pyrrhotite	Fe _{0.980} S	hex	defect niccolite	2	3.446		5.848			
Pyrrhotite	Fe _{0.885} S	hex	defect niccolite	2	3.440		5.709			
Quartz (α)	SiO ₂	hex		3	4.9136		5.4051			
Quartz (β)	SiO ₂	hex		3	4.999		5.4592			
Rammelsbergite	NiAs ₂	orth	marcasite	2	4.757	5.797	3.542			
Realgar	AsS	monocl		16	9.29	13.53	6.57		106.55°	
Retgersite	NiSO ₄ ·4H ₂ O	tetr		4	6.782		18.28			
Rhodochrosite	MnCO ₃	rhomb	calcite	6	4.7771		15.664			

Name	Formula	Crystal system	Structure type	Z	a/Å	b/Å	c/Å	α	β	γ
Rhodonite	MnSiO ₃	tricl		10	7.682	11.818	6.707	92.36°	93.95°	105.66°
Riebeckite	Na ₂ Fe ₅ FSi ₈ O ₂₂ (OH) ₂	monocl	tremolite	2	9.729	18.065	5.334		103.31°	
Rutile	TiO ₂	tetr		2	4.5937		2.9618			
Safflorite	Co _{0.5} Fe _{0.5} As ₂	orth	marcasite	2	5.231	5.953	2.962			
Sanmartinite	ZnWO ₄	monocl	wolframite	2	4.691	5.720	4.925		89.36°	
Sapphirine	Mg ₂ Al ₄ O ₆ SiO ₄	monocl		8	9.96	28.60	9.85		110.5°	
Scacchite	MnCl ₂	rhomb		3	3.711		17.59			
Scheelite	CaWO ₄	tetr	scheelite	4	5.242		11.372			
Schorl	NaFe ₃ Al ₆ B ₃ Si ₆ O ₂₇ (OH) ₄	rhomb	tourmaline	3	16.032		7.149			
Selenium	Se	hex		3	4.3642		4.9588			
Selenolite	SeO ₂	tetr		8	8.35		5.05			
Sellaite	MgF ₂	tetr	rutile	2	4.621		3.050			
Senarmontite	Sb ₂ O ₃	cubic	arsenic trioxide	16	11.152					
Shandite	Ni ₃ Pb ₂ S ₂	rhomb		3	5.576		13.658			
Shortite	Na ₂ Ca ₂ (CO ₃) ₃	orth		2	4.961	11.03	7.12			
Siderite	FeCO ₃	rhomb	calcite	6	4.6887		15.373			
Silicon	Si	cubic	diamond	8	5.4305					
Sillimanite	Al ₂ OSiO ₄	orth		4	7.4843	7.6730	5.7711			
Silver	Ag	cubic	face-centered cubic	4	4.0862					
Silver telluride I	Ag ₂ Te	cubic		2	5.29					
Silver telluride II	Ag ₂ Te	cubic		4	6.585					
Smithsonite	ZnCO ₃	rhomb	calcite	6	4.6528		15.025			
Soda niter	NaNO ₃	rhomb	calcite	6	5.0696		16.829			
Sodium melilite	NaCaAlSi ₂ O ₇	tetr	melilite	2	8.511		4.809			
Sperrylite	PtAs ₂	cubic	pyrite	4	5.968					
Spessartite	Mn ₃ Al ₂ Si ₃ O ₁₂	cubic	garnet	8	11.621					
Sphalerite	ZnS	cubic	sphalerite	4	5.4093					
Sphene	CaTiSiO ₅	monocl		4	7.07	8.72	6.56		113.95°	
Spinel	MgAl ₂ O ₄	cubic	spinel	8	8.080					
Spodumene	LiAl(SiO ₃) ₂	monocl	diopside	4	9.451	8.387	5.208		110.07°	
Spodumene (β)	LiAl(SiO ₃) ₂	tetr		4	7.5332		9.1540			
Staurolite	Fe ₂ Al ₃ Si ₄ O ₂₂ (OH) ₂	monocl		2	7.90	16.65	5.63		90.00°	
Sternbergite	AgFe ₂ S ₃	orth		8	11.60	12.675	6.63			
Stibnite	Sb ₂ S ₃	orth	stibnite	4	11.229	11.310	3.8389			
Stilleite	ZnSe	cubic	sphalerite	4	5.6685					
Stishovite	SiO ₂	tetr	rutile	2	4.1790		2.6649			
Stolzite	PbWO ₄	tetr	scheelite	4	5.4616		12.046			
Stromeyerite	Ag _{0.93} Cu _{1.07} S	orth		4	4.066	6.628	7.972			
Strontianite	SrCO ₃	orth	aragonite	4	6.029	8.414	5.107			
Sulfur (monoclinic)	S	monocl	S8 ring molecules	48	11.04	10.98	10.92		96.73°	
Sulfur (orthorhombic)	S	orth	S8 ring molecules	128	10.4646	12.8660	24.4860			
Sulfur (rhombohedral)	S	rhomb	S6 ring molecules	18	10.818		4.280			
Sylvite	KCl	cubic	rock salt	4	6.2931					
Syngenite	K ₂ Ca(SO ₄) ₂ ·H ₂ O	monocl		2	9.775	7.156	6.251		104.00°	
Synthetic anorthite	CaAl ₂ Si ₂ O ₈	hex		2	5.10		14.72			
Synthetic anorthite	CaAl ₂ Si ₂ O ₈	orth		2	8.22	8.60	4.83			
Talc	Mg ₃ Si ₄ O ₁₀ (OH) ₂	monocl	2M1 mica	4	5.287	9.158	18.95		99.50°	
Tantalum	Ta	cubic	tungsten	2	3.3058					
Teallite	PbSnS ₂	orth	germanium sulfide	2	4.266	11.419	4.090			
Tellurite	TeO ₂	orth	tellurite	8	5.607	12.034	5.463			
Tellurium	Te	hex	selenium	3	4.4570		5.9290			
Tellurobismuthite	Bi ₂ Te ₃	rhomb		3	4.3835		30.487			
Tennantite	Cu ₁₂ As ₄ S ₁₃	cubic	tetrahedrite	2	10.190					
Tenorite	CuO	monocl		4	4.684	3.425	5.129		99.47°	
Tephroite	Mn ₂ SiO ₄	orth	olivine	4	4.871	10.636	6.232			

Name	Formula	Crystal system	Structure type	Z	a/Å	b/Å	c/Å	α	β	γ
Tetrahedrite	Cu ₁₂ Sb ₄ S ₁₃	cubic	tetrahedrite	2	10.327					
Thenardite	Na ₂ SO ₄	orth	thenardite	8	5.863	12.304	9.821			
Thorianite	ThO ₂	cubic	fluorite	4	5.5952					
Thorite	ThSiO ₄	tetr	zircon	4	7.143		6.327			
Tiemannite	HgSe	cubic	sphalerite	4	6.0853					
Tin	Sn	tetr		4	5.8315		3.1813			
Titanium	Ti	hex		2	2.953		4.729			
Titanium(III) oxide	Ti ₂ O ₃	rhomb	corundum	6	5.149		13.642			
Topaz	Al ₂ SiO ₄ (OH,F) ₂	orth		4	8.394	8.792	4.649			
Tremolite	Ca ₂ Mg ₅ Si ₈ O ₂₂ (OH) ₂	monocl	tremolite	2	9.840	18.052	5.275		104.70°	
Trevorite	NiFe ₂ O ₄	cubic	spinel	8	8.339					
Tridymite (β)	SiO ₂	hex		4	5.0463		8.2563			
Trogtalite	CoSe ₂	cubic	pyrite	4	5.8588					
Troilite	FeS	hex	niccolite	2	3.446		5.877			
Tschemmakite	CaAl ₂ SiO ₆	monocl	diopside	4	9.615	8.661	5.272		106.12°	
Tungsten	W	cubic		2	3.1653					
Tungstenite	WS ₂	hex	molybdenite	2	3.154		12.362			
Turquoise	CuAl ₆ (PO ₄) ₄ (OH) ₈ ·4H ₂ O	tricl		1	7.424	7.629	9.910	68.61°	69.71°	65.08°
Umangite	Cu ₃ Se ₂	tetr		2	6.402		4.276			
Uraninite	UO ₂	cubic	fluorite	4	5.4682					
Ureyite	NaCr(SiO ₃) ₂	monocl	diopside	4	9.550	8.712	5.273		107.44°	
Uvarovite	Ca ₃ Cr ₂ Si ₃ O ₁₂	cubic	garnet	8	11.999					
Uvite	CaMg ₄ Al ₃ B ₃ Si ₆ O ₂₇ (OH) ₄	rhomb	tourmaline	3	15.86		7.19			
Vaesite	NiS ₂	cubic	pyrite	4	5.6873					
Valentinite	Sb ₂ O ₃	orth	antimony trioxide	4	4.914	12.468	5.421			
Vanthoffite	MgSO ₄ ·3Na ₂ SO ₄	monocl		2	9.797	9.217	8.199		113.50°	
Vaterite	CaCO ₃	hex		6	7.135		8.524			
Villiaumite	NaF	cubic	rock salt	4	4.6342					
Violarite	FeNi ₂ S ₄	cubic	spinel	8	9.464					
Willemite	Zn ₂ SiO ₄	rhomb	phenacite	18	13.94		9.309			
Witherite	BaCO ₃	orth	aragonite	4	6.430	8.904	5.314			
Wolframite	Fe _{0.5} Mn _{0.5} WO ₄	monocl	wolframite	2	4.782	5.731	4.982		90.57°	
Wollastonite	CaSiO ₃	tricl		6	7.94	7.32	7.07	90.03°	95.37°	103.43°
Wulfenite	PbMoO ₄	tetr	scheelite	4	5.435		12.110			
Wurtzite	ZnS	hex	zincite	2	3.8230		6.2565			
Wustite	Fe _{0.953} O	cubic	defect rock salt	4	4.3088					
Xenotime	YPO ₄	tetr	zircon	4	6.885		5.982			
Zinc	Zn	hex	hexagonal close pack	2	2.665		4.947			
Zinc telluride	ZnTe	cubic	sphalerite	4	6.1020					
Zincite	ZnO	hex	zincite	2	3.2495		5.2069			
Zinkosite	ZnSO ₄	orth	barite	4	8.588	6.740	4.770			
Zircon	ZrSiO ₄	tetr	zircon	4	6.604		5.979			
Zoisite	Ca ₂ Al ₃ (SiO ₄) ₃ OH	orth		4	16.15	5.581	10.06			