Chemischer Name	Mineralname	Chemical formula	Melting point [°C]	Crystal system	Crystal Class (Symbol)	Space Group	Unit cell a [Å]	b [Å]	c [Å]	Formula units	Frequent crystal surfaces	Twinning	Mohs hardness	Density [g/cm3]	Cleavage	Fracture / Tenacity	Color	Streak	Transparency	Lustre	Optical character	Refractive index	Birefringence δ	Pleochroism	Doping [%]	Other
Lead Arseno Chloride	**Mimetesite**	Pb5(AsO4)3Cl		hexagonal	hexagonal-dipyramidal (6/m)	*P*6_3/m	10.211	10.211	7.418	Z=2	{10-10}, {0001}, {10-11}, {11-21}, {21-31}	rare on {11-22}	3.8 - 4	~7:2	imperfect on [10-11]	conchoidal, brittle	pale to bright yellow, yellowish brown, yellow-orange, white, colorless	white	transparent to translucent	resinous to diamond-like	uniaxial (-)	nω=2.147; nε=2.128	0.019	weak		
Molybdenium di sulfide	**Molybdenite**	MoS2	1750	hexagonal	dihexagonal-dipyramidal (6/mmm)	*P*6_3/mmc	3.16	3.16	12.32	Z=2			1 - 1.5	4.7 - 4.8	perfect on [0001]	lamellae flexible, not elastic	black, lead-silvery gray	bluish gray	nearly opaque, translucent when in thin flakes	metallic				very strong		
Magnesium Iron Silicate	**Olivine**	(Mg,Fe)2SiO4		orthorhombic	orthorhombic-dipyramidal (2/*m* 2/*m* 2/*m*)	*P*bnm	6.01	4.78	10.30	Z=4	{110}, {120} combinated with {021}, {101}, {111} and {010}		6.5 - 7	3.2 - 4.5	good on {001}, clear on {010}	brittle to conchoidal	yellow to yellow-green	white	transparent to translucent	vitreous	biaxial (+)	nα=~1.640; nβ=~1.660; nγ=~1.680	0.040			
	Phlogopite	KMg3(AlSi3O10)(F,OH)2		monoclinic	nonoclinic-prismatic (2/m	*C*2/*m*	3.16	3.16	12.30	Z=2	{001}	composition twinning	2 - 2.5	2.75 - 2.97	perfect on (001) (basal)	tough, flexible thin laminae	brownish red, dark brown, yellowish brown, green, white	white	transparent to translucent	pearly, slightly metallic on cleavage surfaces	biaxial (-)	nα=1.530-1.573; nβ=1.557-1.617; nγ=1.558-1.618	0.028-0.045			fluorescent
Iron Sulfide Hexagonal	**Pyrrhothin**	FeS - Fe10S11		hexagonal	dihexagonal-dipyramidal (6/*m* 2/*m* 2/*m*)	*P*6_3/mmc	3.44	3.44	5.88	Z=2			3.5 - 4.5	4.6	clear on {0001} and {11-20}	conchoidal, brittle	yellowish brown	gray to black	opaque	metallic						
Iron Sulfide Cubic	**Pyrite**	FeS2		cubic	cubic-disdodecahedron (2/m -3)	*P*a-3	5.42	5.42	5.42	Z=4		penetration and contact twinning	6 - 6.5	4.8 - 5	indistinct on {001}	brittle, uneven, sometimes conchoidal	pale brass-yellow reflective, tarnishes darker	greenish- to brownish-black	opaque	metallic						paramagnetic
Lead Phosphoro Chloride	**Pyromorphite**	Pb5(PO4)3Cl		hexagonal	hexagonal-dipyramidal (6/m)	*P*6_3/m	9.97	9.97	7.32	Z=2	{10-10}, {0001}, {10-11}, {20-21}, {11-21}	rarely on {11-22}	3.5 - 4	6.7 - 7	imperfect on [10-11]	brittle, uneven to conchoidal	dark green to green, yellow, yellow-orange, reddish-orange, yellow-brown to brown, tan, grayish to colorless	white	transparent to translucent	resinous to subadamantine	uniaxial (-)	nω=2.058; nε=2.048	0.010	weak		
Manganese Carbonite	**Rhodochrosite**	Mn(CO3)		trigonal	ditrigonal-scalenohedral (-3 2/m)	*R*-3c	4.74	4.74	15.51	Z=6		on {01-12} (contact and lamellar)	3.5 - 4.5	3.3 - 3.6	perfect on {10-11}	conchoidal	pink to rose-red, cherry-red, yellow to yellowish gray, brown	white	transparent to translucent	vitreous to pearly	uniaxial (-)	nω=1.814-1.816; nε=1.596	0.218	weak		
Calcium Aluminium Silicate (Zeolite)	**Scolecite**	(CaAl2Si3O10)*3H2O		monoclinic	monoclinic-domatic (m)	*C*c	18.51	18.97	6.53	Z=8	{010}, {110}, {111}	on [001] pseudorhomohedral contact- and penetration twinning, on {010} lamellar	5 - 5.5	~2.3	perfect on {110} and {1-10}	uneven, brittle	colorless to white, pink, salmon, red or green	white	transparent to translucent	vitreous, silky when fibrous	biaxial (-)	nα=1.507-1.513; nβ=1.516-1.520; nγ=1.517-1.521	0.010			pyroelectric and piezoelectric
Lithium Aluminium Silicate	**Spodumene**	LiAl(SiO3)2		monoclinic	monoclinic-prismatic (2/m)	*C*2/*c*	9.52	8.32	5.25	Z=4	{100}, {010}, {110}	common on {100}	6.5 - 7	3.1 - 3.2	perfect on {110}	uneven to conchoidal	colorless to grayish-white, rose to violett, green	white	transparent to translucent	vitreous, pearly on cleavage surfaces	biaxial (+)	nα=1.648-1.661; nβ=1.655-1.670; nγ=1.662-1.670	0.014 - 0.018	strong		often fluorescent (kunzite)
Potassium Calcium silicate Aluminate	**Stilbite**	[Na9-1,Ca0-4(Si27Al9)O72]*28(H2O)		monoclinic	monoclinic-prismatic (2/m)	*C*2/*m*	13.63	18.17	11.31	Z=4		common on {001} (penetration twinning)	3.5 - 4	2.1 - 2.2	perfect on {010}	uneven to conchoidal	colorless (usually), white, pink	white	transparent to translucent	vitreous, pearly on cleavage surfaces	biaxial (-)	nα=1.484-1.500; nβ=1.492-1.507; nγ=1.494-1.513				
Copper (II) oxide	**Tenorite**	CuO	1326	monoclinic	monoclinic-prismatic (2/m)	*C*2/*c*	4.67	3.42	5.12	Z=4		common on {011} (lamellar)	3.5 - 4	6 - 6.5	poor to indistinct	brittle, flexible and elastic in thin flakes; uneven to conchoidal	steel-gray, iron-gray, black	brownish-black	opaque, thin flakes transparent	metallic to earthy	biaxial (+)			distinct		
Aluminium Hydroxy Flouro Silicate	**Topaz**	Al2[(F,OH)2SiO4]		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*bnm	4.65	8.80	8.40	Z=4			8	3.5 - 3.6	perfect on (001)	uneven to conchoidal	yellowish brown (common), blau, violett, red, colorless	white	transparent to translucent	vitreous	biaxial (+)	nα=1.606-1.629; nβ=1.609-1.631; nγ=1.616-1.638	0.010	weak		
	Tourmaline	(Ca,K,Na)(Al,Fe,Li,Mg,Mn)3(Al,Cr,Fe,V)6(BO3)3(Si,Al,B)6O18(OH,F)4		trigonal	ditrigonal-pyramidal (3m)	*R*3*m*	15.84 - 16.03	15.84 - 16.03	7.10 - 7.15	Z=3			7 - 7.5	2.82 - 3.32	indistinct	brittle, uneven, small conchoidal	black (common), colorless to brown, red, orange, yellow, green, blue, violet, pink, can be bi-colored or even tri-colored in between	white	translucent to opaque	vitreous, sometimes resinous	uniaxial (-)	nω=1.635-1.675; nε=1.610-1.650	0.018 - 0.040	moderate to strong		
	Tausonite (Strontium Titanate)	SrTiO3		cubic	hexoctahedral (4/m -3 2/m)	*P*m3m	3.9	3.9	3.9	Z=1			6 - 6.5	~4.8	indistinct	brittle, conchoidal	red to reddish-brown, orange, dark gray		translucent to opaque	adamantine	isotropic	n=2.4				
Lead Vanadium Chloride	**Vanadinite**	Pb5(VO4)3Cl		hexagonal	hexagonal-dipyramidal (6/m)	*P*6_3/m	10.32	10.32	7.34	Z=2	{0001}, {10-10}, {10-11}, {21-31}		3 - 4	6.8 - 7.1	none	uneven, conchoidal	yellow, orange, brown, sometimes red	white to bright yellowish-brown	opaque to transparent or translucent	resinous to adamantine	uniaxial (-)	nω=2.416; nε=2.350	0.066			
Iron (III)Oxide	**Hematite**	Fe2O3	1539 - 1569	trigonal	ditrigonal-scalenohedral (-3 2/m)	*R*-3c	5.04	5.04	13.77	Z=6	{10-11}, {10-12}, {0001}, {10-18}, {11-23}, {01-14}, {01-11}, {11-20}	penetration and lamellar on {0001}, {10-12} and {10-12}	5.5 - 6.5	5.2 - 5.3	none	brittle, in thin flakes elastic, uneven to conchoidal	metallic-gray, dull to bright red	bright red to dark red	opaque	metallic to splendent	uniaxial (-)	nω=3.150-3.220; nε=2.870-2.940	0.280	moderate to strong		
Zirconium Silicate	**Zircon**	ZrSiO4	2550	tetragonal	ditetragonal-dipyramidal (4/m 2/m 2/m)	*I*4_1/amd	6.59	6.59	5.94	Z=4	{100}, {110}, {101}	on {101}; polysynthetic twins on {112} (shocked crystals by meteorite impact)	7.5	4.67	perfect on {110} and {111}	conchoidal to uneven	reddish-brown, yellow, blue, green, gray, colorless	white	transparent to opaque	vitreous to adamantine	uniaxial (+)	nω=1.925-1.961; nε=1.980-2.015	0.047 - 0.055	weak		radioactive, fluorescent
Silver sulfide monoclinic	**Acanthite**	Ag2S	825	monoclinic	monoclinic-prismatic (2/m)	*P*2_1/n	4.23	6.93	7.86	Z=4		polysynthetic twins on {111}	2.0 - 2.5	7.3	indistinct	uneven	iron-black	black	opaque	metallic						
Titanium Oxide Anatase type	**Anatase**	TiO2		tetragonal	ditetragonal-dipyramidal (4/m 2/m 2/m)	*I*4_1/amd	3.78	3.78	9.51	Z=4	often prismatic with {110} and {010}	rare on {112}	5.5 - 6	3.9	perfect on {001} and {011}	brittle to weakly conchoidal	black, reddish to yellowish brown, dark blue, gray	pale yellowish to white	transparent to opaque	metallic to adamantine	uniaxial (-)	nω=2.561; nε=2.488	0.073	weak		
Aluminium Silicate	**Andalusite**	Al2SiO5		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*nnm	7.78	7.92	5.57	Z=4	{110}, {001}	rare on {101}	6.5 - 7.5	3.13 - 3.16	perfect on {110}	brittle to subconchoidal	pink, violet, yellow, green, white, gray	white	transparent to nearly opaque	vitreous	biaxial (-)	nα=1.629-1.640; nβ=1.633-1.644; nγ=1.638-1.650	0.009 - 0.010	strongly trichroic		
Calcium Phosphate	**Apatite**	Ca5(PO4)3(F,Cl,OH)		hexagonal	hexagonal-dipyramidal (6/m)	*P*6_3/m	9.38	9.38	6.86	Z=2	{10-10}, {0001}, {10-11}		5	3.2	indistinct	brittle to conchoidal	usually green, colorless, yellow, blue, violet, pink, brown	white	transparent to translucent	vitreous to subresinous	uniaxial (-)	nω=1.631-1.675; nε=1.627-1.668	0.004 - 0.014	weak to very weak		
Calcium Carbonate Aragonite type	**Aragonite**	CaCO3		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*mcn	4.96	7.97	5.74	Z=4		often on {110} cyclically and polysynthetic parallel to {100}	3.5 - 4	2.94	imperfect on {110} and {011}, indistinct on {010}	brittle, conchoidal	white, red, yellow, orange, green, purple, gray, blue, brown	white	translucent to transparent	vitreous, resinous on fracture and cleavage surfaces	biaxial (-)	nα=1.529-1.530; nβ=1.680-1.682; nγ=1.685-1.686	0.156	none		
Arsen Sulfide	**Orpiment**	As2S3	300 - 325	monoclinic	monoclinic-prismatic (2/m)	*P*2_1/n	11.48	9.58	4.26	Z=4	{100}, {010}, {301}, {110}, {011}, {210}		1.5 - 2	3.49	perfect on {010}, imperfect on {100}	sectile	yellow to golden or brownish-yellow	pale lemon-yellow	transparent	resinous, pearly on cleavage surfaces	biaxial (-)	nα=2.400; nβ=2.810; nγ=3.020	0.620	strong		
Copper Hydroxy Carbonate	**Azurite**	Cu3(CO3)2(OH)2		monoclinic	monoclinic-prismatic (2/m)	*P*2_1/c	5.01	5.85	10.35	Z=2		rare on {-101}, {-102}, {001}	3.5 - 4	3.77	nearly perfect on {011}, distinct on {100}, indistinct on {110}	conchoidal	(azure-)blue, very dark to pale blue, pale blue in transmitted light	light blue	transparent to translucent	vitreous	biaxial (+)	nα=1.730; nβ=1.758; nγ=1.838	0.108	moderate to strong		
Barium Sulfate	**Baryte**	BaSO4	1580	orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*nma	8.88	5.46	7.16	Z=4			3 - 3.5	4.48	perfect on {001} and {210}, imperfect on {010}	brittle, uneven	colorless, white, light blue shaded, yellow, gray, brown	white	transparent to opaque	vitreous, pearly	biaxial (+)	nα=1.634-1.637; nβ=1.636-1.638; nγ=1.646-1.648	0.012	colorless		fluorescent, phosphorescent
Beryllium Aluminium Silicate	**Beryl**	Be3Al2(SiO3)6		hexagonal	dihexagonal-dipyramidal (6/m 2/m 2/m)	*P*6/*mcc*	9.23	9.23	9.19	Z=2	{10-10}, {0001}, {11-20}	rare	7.5 - 8	2.63 - 2.8	imperfect on {0001}	uneven to conchoidal, brittle	blue, green, yellow, rose, red, white, colorless	white	transparent to translucent	vitreous to resinous	uniaxial (-)	nω=1.564-1.595; nε=1.568-1.602	0.004 - 0.007	weak to distinct		
	Biotite	K(Mg,Fe,Mn)3[(OH,F)2|(Al,Fe,Ti)Si3O10]		monoclinic (pseudo-hexagonal)	monoclinic-prismatic (2/m)	*C*2/*m*	5.31	9.23	10.18	Z=2		common on {310}, less common on {001}	2.5 - 3	2.7 - 3.3	perfect on {001}	brittle to flexible, elastic, micaceous	dark brown, greenish brown, blackish brown, yellow, white	white	transparent to translucent to opaque	vitreous to pearly	biaxial (-)	nα=1.565-1.625; nβ=1.605-1.675; nγ=1.605-1.675	0.030 - 0.070	strong		
Manganese Iron Oxide	**Bixbyite**	(Mn,Fe)2O3		cubic	cubic-diploidal (2/m -3)	*I*a3	9.41	9.41	9.41	Z=16		penetration twinning on {111}	6 - 6.5	4.95	imperfect on {111}	uneven to conchoidal	black	black	opaque	metallic	isotropic					
Lead Carbonate	**Cerussite**	PbCO3		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*mcn	5.18	8.49	6.13	Z=4	{110}, {010}, {021}, {130}, {001}	on {110} simple and cyclic contact twins	3 - 3.5	6.56	perfect on {110} and {021}, indistinct on {010} and {012}	very brittle, conchoidal	colorless, white, bright yellow, gray, black	white	translucent	adamantine, vitreous, resinous	biaxial (-)	nα=1.803; nβ=2.074; nγ=2.076	0.273			fluorescent
Copper Iron Sulfide	**Chalcopyrite**	CuFeS2		tetragonal	tetragonal-scalenohedral (-4 2 m)	*I*-42d	5.289	5.289	10.423	Z=4		on {112} and {012} penetration and cyclic twins	3.5 - 4	4.3	indistinct on {011} and {111}	brittle, uneven, conchoidal	brass yellow	greenish black	opaque	metallic						magnetic on heating
Mecury Sulfide	**Cinnabarite**	HgS	580	trigonal	trigonal-trapezohedral (32)	*P*3_1 21	4.15	4.15	3.26	Z=3	{0001}, {10-11}	contact and penetration twins on {0001}	2 - 2.5	8.18	perfect on {10-10}, prismatic	brittle, sectile, conchoidal to uneven	red to brownish red, lead-gray	scarlet	transparent in thin flakes	adamantine, metallic to dull	uniaxial (+)	nω=2.905; nε=3.256	0.351			
Strontium Sulfate	**Celestine**	SrSO4		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*nma	8.36	5.35	6.85	Z=4	{001}, {010}, {011}, {101}, {210}		3 - 3.5	3.9	perfect on {001}, indistinct on {210}	brittle, uneven to conchoidal	colorless, white, pale blue, pink, pale green, pale brown, black	white	transparent to translucent	vitreous, pearly on cleavage surfaces	biaxial (+)	nα=1.619-1.622; nβ=1.622-1.624; nγ=1.630-1.632	0.011	weak		
Aluminium Oxy Hydroxide	**Diaspore**	AlO(OH)		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*bnm	4.40	9.42	2.84	Z=4		twinning on {021} or pseudohexagonal aggregates	6.5 - 7	3.3 -3.5	perfect on {010}, distinct on {100} and indistinct {100}	conchoidal	white, pale gray, colorless, greenish gray, brown, pale yellow, pink, purple	white	transparent to translucent	vitreous, pearly	biaxial (+)	nα=1.682-1.706; nβ=1.705-1.725; nγ=1.730-1.752	0.048	strong		
Calcium Magnesium Carbonate	**Dolomite**	CaMg(CO3)2		trigonal	trigonal-rhombohedral (-3)	*R*-3	4.81	4.81	16.01	Z=3	surfaces often saddle-shaped curved	common as simple contact twins	3.5 - 4	2.87	perfect on {10-11}	conchoidal	white, gray to pink	white	transparent to translucent	vitreous to pearly	uniaxial (-)	nω=1.680; nε=1.500	0.180	none		
Zincferrite Zinc Iron Spinell	**Franklinite**	ZnFe2O4		cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*d-3m	8.47	8.47	8.47	Z=8	{111}, {100}	on {111}	6 - 6.5	5.0 - 5.2	none	conchoidal, uneven/irregular	black	reddish brown to black	opaque	metallic to dull	isotropic	n=2.35		none		
Zinkaluminate Zinc Aluminium Spinell	**Gahnite**	ZnAl2O4		cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*d-3m	8.09	8.09	8.09	Z=8	{111}, {110}, {211}, occasionally {100}	on {111}	7.5 - 8	4.6	indistinct	brittle, uneven to conchoidal	blue, green, yellowish brown, greenish black	gray to white	translucent to opaque	resinous to vitreous	isotropic	n=1.79-1.80		none		
Lead Sulfide	**Galena**	PbS	1114	cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*m-3m	5.94	5.94	5.94	Z=4	{100}, {111}, {110}, {221}	on {111}	2.5 - 3	7.2 - 7.6	perfect on {100}	brittle, subconchoidal	lead gray, silvery	lead gray	opaque	metallic	isotropic					
Aluminium Hydroxide	**Gibbsite**	Al(OH)3		monoclinic	monoclinic-prismatic (2/m)	*P*2_1/m	8.64	5.07	9.72	Z=8	{001}, {101}, {110}	on {001}, rare on {100}, {110}	2.5 - 3.5	2.3 - 2.4	perfect on (001)	uneven	colorless, white, gray, green, blue	white	transparent to translucent	vitreous, pearly, dull	biaxial (+)	nα=1.568-1.570; nβ=1.568-1.570; nγ=1.586-1.587	0.018			
Calcium Sufate	**Gypsum**	Ca(SO4)*2H2O		monoclinic	monoclinic-prismatic (2/m)	*A*2/*a*	6.52	15.18	6.29	Z=4	{010}	very common on {001}, contact twins	2	2.3 - 2.4	perfect on {010}, distinct on {100}	flexible, inelastic, conchoidal on {100}, splintery parallel to [100]	colorless to white, yellow, tan, blue, pink, brown, reddish brown, gray	white	transparent to translucent	vitreous to silky, pearly, waxy	biaxial (+)	nα=1.519-1.521; nβ=1.522-1.523; nγ=1.529-1.530	0.010	none		
Manganese Oxide	**Hausmannite**	(Mn(2+)Mn(3+))2O4		tetragonal	ditetragonal-dipyramidal (4/m 2/m 2/m)	*I*4_1/amd	5.76	5.76	9.44	Z=4		common on (112)	5.5	4.7 - 4.84	perfect on {001}, indistinct on {112}, {011}	brittle, uneven	brownish black, grayish	dark reddish brown	opaque, transparent on thin edges	submetallic	uniaxial (-)	nω=2.15; nε=2.46	0.310			
	Heulandite	[(Ca,Na)2-3Al3(Al,Si)2Si13O36]*12H2O		monoclinic	monoclinic-prismatic (2/m)	*C*2/*m*	17.71	17.84	7.46	Z=4	{010}, {100}, {001}, {20-1}, {110}, {111}	on {100}	3.5 - 4	2.2	perfect on {010}	subconchoidal to uneven	colorless, white, gray, yellow, rose to red, orange, brown, black	white	transparent to translucent	vitreous, pearly on cleavage planes	biaxial (+)	nα=1.476-1.506; nβ=1.479-1.510; nγ=1.479-1.170	0.003 - 0.011			
Iron Titanate	**Ilmenite**	FeTiO3		trigonal	trigonal-rhombohedral (-3)	*R*-3	5.09	5.09	14.09	Z=6		simple on {0001} lamellar on {10-11}	5 - 6	4.5 - 5	absent	conchoidal to subconchoidal	iron-black, gray, brownish tint in reflected light	black	opaque	metallic to submetallic	uniaxial (-)			moderate to strong		
Iron Carbonate	**Siderite**	FeCO3		trigonal	ditrigonal-scalenohedral (-3 2/m)	*R*-3c	4.69	4.69	15.38	Z=6		uncommon lamellar on {01-12}	4 - 4.5	3.7 - 3.9	perfect on {10-11}	uneven to conchoidal	yellow, brown, black	white to bright yellowish	transparent to translucent	vitreous to pearly	uniaxial (-)	nω=1.875; nε=1.633	0.242			
	Clinozoisite	Ca2Al3(Si2O7)(SiO4)O(OH)		monoclinic	monoclinic-prismatic (2/m)	*P*2_1/m	8.88	5.58	10.16	Z=2	{100}, {111}, {001}	lamellar on {100}, rare	6.5 - 7	3.2 - 3.4	perfect on {001}	uneven	colorless, gray, green, light yellowish	grayish, white	transparent to translucent	vitreous	biaxial (+)	nα=1.670-1.718; nβ=1.670-1.725; nγ=1.690-1.734	0.004 - 0.015	if containing small quantities of Fe(3+) moderate		
	Lepidocrodite	γ-Fe(3+)O(OH)		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*C*mc2_1	3.88	12.54	3.07	Z=4	{010}		5	4.0	perfect on (010)	uneven to conchoidal	dark red to reddish brown	reddish to brownish	transparent to opaque	submetallic, silky, adamantine	biaxial (-)	nα=1.940; nβ=2.200; nγ=2.510	0.570	strong		
	Lepidolite	K(Li,Al)3(Al,Si,Rb)4O10(F,OH)2		monoclinic	monoclinic-prismatic (2/m)	C2/m	5.21	8.97	20.16	Z=2		rare, composition plane on {001}	2.5 - 3	2.8 - 2.9	perfect on {001}	uneven	pink, purple, rose-red, violet-gray, yellowish, white, colorless	white	transparent to translucent	vitreous to pearly	biaxial (-)	nα=1.525-1.548; nβ=1.551-1.580; nγ=1.554-1.586	0.029 - 0.038	moderate to strong		
Lead Copper Hydroxy Sulfate	**Linarite**	PbCu[(OH)2|SO4]		monoclinic	monoclinic-prismatic (2/m)	*P*2_1/m	9.81	5.65	4.70	Z=2		common on {100}, also {001}	2.5	5.3 - 5.5	perfect on {100}, imperfect on {001}	conchoidal	deep azure blue	pale blue	transparent to translucent	subadamantine, vitreous	biaxial (-)	nα=1.809; nβ=1.838; nγ=1.859	0.050	moderate		
Magnesium Silicate	**Enstatite**	MgSiO3		orthorhombic	orthorhombic-dipyramidal (2/m 2/m 2/m)	*P*bca	18.23	8.84	5.19	Z=8	{010}, {210}, {311}, {111}	simple or lamellar on {100}	5 - 6	~3.2	good on {210}	brittle, uneven	colorless, white, gray, yellowish-green, green, olive, brown	white	translucent to opaque	vitreous	biaxial (+)	nα=1.650-1.668; nβ=1.652-1.673; nγ=1.659-1.679	0.010	moderate		
	Stolzite (Lead tungstate)	PbWO4	1123	tetragonal	tetragonal-dipyramidal (4/m)	*I*4_1/a	5.50	5.50	12.12	Z=4	{111}, {101}, {011}, {112}, {001}		2.5 - 3	8.28	cleavage plane on (101), imperfect on {001}, indistinct on {011}	brittle, conchoidal to uneven	reddish-brown, brown, yellowish-gray, smoky-gray, straw-yellow, lemon-yellow, may be green, orange, red	white	translucent to transparent	resinous, subadamantine	uniaxial (-)	nω=2.270; nε=2.180-2.190	0.090			
Magnesium Carbonate	**Magnesite**	MgCO3		trigonal	ditrigonal-scalenohedral (-3 2/m)	*R*-3c	4.59	4.59	14.87	Z=6			3.5 - 4.5	~3.0	perfect on [10-11]	conchoidal	colorless, white, yellowish, brownish to black	white	transparent to opaque	vitreous to dull	uniaxial (-)	nω=1.700; nε=1.509	0.191			
	Nickel (II) oxide	NiO	1984	cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*m-3m	4.18	4.18	4.18	Z=4			5.5	6.8	none	uneven	dark pistachio-green	brownish-black	transparent	vitreous	isotropic	n=2.370				very high relief
	Potassium niobate	KNbO3	1100	orthorhombic		*A*mm2	5.69	3.97	5.72				5	4.62												piezoelectric
	Quarz	SiO2		trigonal	trigonal-trapezohedral (32)	*P*3_1 21, *P*3_2 21	4.91	4.91	5.40	Z=3	{10-11}, {01-11}, {10-10}	dauphine law, brazil law, japan law	7	2.65	none	brittle, conchoidal	colorless, white, all colors possible	white	transparent to opaque	vitreous on prismatic surfaces, resinous on fracture planes	uniaxial (+)	nω=1.543; nε=1.552	0.009	none		
	Sapphire (Corundum)	Al2O3		trigonal	ditrigonal-scalenohedral (-3 2/m)	*R*-3c	4.74	4.74	12.97	Z=6		polysynthetic twins common	9	3.9 - 4.1	none	brittle, uneven to conchoidal	colorless, gray, brown, pink to red, orange, yellow, green, blue, violet, may be color zoned	white	transparent, translucent to opaque	adamantine to vitreous	uniaxial (-)	nω=1.769; nε=1.761	0.009	distinct		luminescent (rare but very strong)
	Chrome oxide	Cr2O3	2435	hexagonal/ trigonal		*D*3d6/ *R*-3c	4.96	4.96	13.60	Z=6			9	5.22	(11-20)	hard	light to dark green, fine crystals	greenish	transparent							
	Silicon	Si		cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*d-3m								2.33												
	Silver chloride	AgCl		cubic										5.56		light										
	Strontium oxide	SrO	2531	cubic	cubic-hexoctahedral (4/m -3 2/m)	*F*m-3m	5.159	5.159	5.159				3	4.7	(100)	brittle	colorless									hygroscopic, CO2 corrosive
	Strontium fluoride	SrF2		cubic			5.7996	5.7996	5.7996						(111)	brittle	colorless									hygroscopic, CO2 corrosive
	Yttrium oxide	Y2O3		cubic	cubic-diploidal (2/m -3)	*I*a -3	9.27	9.27	9.27					5.01			white	white								
	Sodium fluoride	NaF	993	cubic		*F*m-3m	4.62	4.62	4.62					2.56			white to greenish					n=1.325				
	PMN-PT	$Pb(Mg_{1/3}Nb_{2/3})O_3–PbTiO_3$		cubic																					30	
	Barium bismutate	BaBiO3																								
	Langasite	La3Ga5SiO14	1475	hexagonal		*P*321																				
	Langatate	La3Ga5.5Ta0.5O14	1450	hexagonal		*P*321								6.31												
	YCOB	$YCa_4O(BO_3)_3$	1510	monoclinic	(m)		8.08	16.02	3.53	Z=2			6 - 6.5	3.31					transparent							
	CTGS	Ca3TaGa3Si2O14	1350																							
	LYSO	Lu2(1-x)Y2xSiO5	2050										5.8	7.4												

Piezoelectric crystals

Mineralname	T(rt) [°C]	T(c) [°C]	K(33) T	Loss [%]	Ec [kV/cm]	d(33) [pm/V]	k(33)	k(t)	N(33) [Hzm]	N(t) [Hzm]	Q(m)	K (relative dielectric constant) = ε(T33)/ε(0)	piezoelectric charge constant	piezoelectric voltage constant	young's modulus	frequency constants; L=longitudinal mode, T=thickness mode	elastic compliance [10^(-12) m^2/N]	electromech. Coupling factor (BAW) K^2(emc) [%]	frequency spacing Δf [%]	temperature frequency coefficient [°10^(-6) / °C]	SAW velocity [m/s]	V(ef)	K^2(emc) (SAW) [%]	a(2) [10^(-8)/°C ^2]	T(T0) (Temp. Coeff.) [°C]	M, degr. (Power Flow Angle)	termal conductivity [W/m/K]	thermal expansation coefficient [(10^(-5))/K]
PMN-PT	85 - 98	>142	5000 - 7500	<0.6	1.9 - 2.5	1500 - 2300	0.91 - 0.95	0.55 - 0.59	599	2002	80																	
Langasite											50							15.8	0.9	1.6	(0°, 140°, 22.5°) 2742		0.32	-7.8	25	52		
Langatate											50	80.3	-d(11)=6.5; d(14)=4.7	-g(11)=38; g(14)=27.7	Y^E(11)=11; Y^E(33)=19	N(L)=2870; N(T)=1320	S^E(11)=9.0; S^E(33)=5.2											
YCOB																											||x = 2.6; ||y = 2.33; ||z = 3.1	a(x) = 10.8; a(y) = -8.8; a(z) = 3.4