Table of Minerals

Minerals are naturally occurring, homogeneous solids formed in the Earth's crust by the inorganic forces of nature, and possess definite, but generally not fixed, chemical compositions, physical characteristics, and highly ordered atomic arrangements. This table contains a group of common minerals selected for their relative importance and frequency of occurrence. Several physical properties commonly used to identify minerals have been included for each entry. The information provided here should be used with the understanding that there is a certain amount of variation in physical properties from specimen to specimen. For more information about the material presented here, consult the references cited at the end of the table.

Streak is the color of a finely powdered mineral obtained by rubbing the mineral on a streak plate, which is an unglazed piece of porcelain.

Since minerals are frequently polymorphic, the crystal system reported in the table is that of the most commonly observed form. The term amorphous (amor) is used to describe noncrystalline minerals that lack an ordered atomic arrangement. The crystal systems have been abbreviated in the table as follows:

hex	hexagonal	ortho	orthorhombic
iso	isometric	tet	tetragonal
mono	monoclinic	trig	trigonal

Hardness, which is the resistance of a smooth surface of a mineral to scratching, is expressed in terms of the Mohs' Hardness Scale. This relative scale spans from 1-9 and is defined as follows:

<2.5	can be scratched by a fingernail
>2.5-3	cannot be scratched by a fingernail; can be scratched by a copper cent
>3-5.5	cannot be scratched by a copper cent; can be scratched by a knife
>5.5-<7	cannot be scratched by a knife; can be scratched by quartz
>7	cannot be scratched by quartz

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Acanthite	Ag_2S	gray-black	black	mono	2-2.5	-	7.3
Actinolite	$Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$	green	white	mono	6	1.64	3.0-3.4
Aegirine	$NaFeSi_2O_6$	dark green, brown, black	white	mono	6	1.82	3.6
Allanite	$(Ca,Ce)_3(Al,Fe)_2Si_3O_{12}(OH)$	brown to pitch-black	colorless	mono	5.5-6	1.70-1.81	3.5-4.2
Almandine	$Fe_3Al_2Si_3O_{12}$	red to black	white	iso	7-7.5	1.83	4.0-4.3
Alunite	$KAl_3(SO_4)_2(OH)_6$	white, red	colorless	hex	4	1.57	2.6-2.8
Amblygonite	$LiAlFPO_4$	white, pale green, blue	colorless	trig	6	1.60	3.0-3.1
Analcime	$NaAlSi_2O_6.H_2O$	colorless, white	colorless	iso	5-5.5	1.48-1.49	2.27
Anatase	TiO_2	brown	white	tet	5.5-6	2.6	3.9
Andalusite	Al_2SiO_5	reddish-brown, white, gray	colorless	ortho	7.5	1.64	3.16-3.20
Andradite	$Ca_3Fe_2Si_3O_{12}$	yellow, green, brown, black	white	iso	7-7.5	1.89	3.8-3.9
Anglesite	$PbSO_4$	colorless, white	colorless	ortho	3	1.88	6.2-6.4
Anhydrite	$CaSO_4$	colorless	colorless	ortho	3-3.5	1.58	2.89-2.98
Anthophyllite	$(Mg,Fe)_7Si_8O_{22}(OH)_2$	white, gray	colorless	ortho	5.5-6	1.61-1.71	2.85-3.2
Antimony	Sb	white to gray	gray	hex	3-3.5	-	6.7
Antlerite	$Cu_3(SO_4)(OH)_4$	dark emerald-green	light green	ortho	3.5-4	1.74	3.88
Apatite	$Ca_5(PO_4)_3(F,Cl,OH)$	green, blue, violet, brown, colorless	colorless	hex	5	1.63	3.15-3.20
Apophyllite	$KCa_4(Si_4O_{10})_2F.8H_2O$	colorless, white	colorless	tet	4.5-5	1.54	2.3-2.4
Aragonite	$CaCO_3$	colorless, white	colorless	ortho	3.5-4	1.68	2.95
Argentite	Ag_2S	black	dark gray-black	iso	2-2.5	-	7.2-7.4
Arsenic	As	tin-white	gray	hex	3.5	-	5.7

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Arsenopyrite	FeAsS	silver-white	black	mono	5.5-6	-	6.0-6.2
Atacamite	$Cu_2Cl(OH)_3$	emerald-green	light green	ortho	3-3.5	1.86	3.75-3.77
Augite	$(Ca,Na)(Mg,Fe,Al)(Si,Al)_2O_6$	black, dark green	white	mono	6	1.67-1.73	3.25-3.55
Autunite	$Ca(UO_2)_2(PO_4)_2.10\text{-}12H_2O$	lemon-yellow	yellow	tet	2-2.5	1.58	3.1-3.2
Axinite	$(Ca,Fe,Mn)_3Al_2(BO_3)(Si_4O_{12})(OH)$	clove-brown	colorless	trig	6.5-7	1.69	3.27-3.35
Azurite	$Cu_3(CO_3)_2(OH)_2$	azure-blue	light blue	mono	3.5-4	1.76	3.77
Barite	$BaSO_4$	colorless, white	colorless	ortho	3-3.5	1.64	4.5
Bauxite	A mixture of Al hydroxides	yellow, brown, gray, white	colorless	-	1-3	-	2.0-2.55
Beryl	$Be_3Al_2(Si_6O_{18})$	bluish-green, yellow, colorless	colorless	hex	7.5-8	1.57-1.61	2.65-2.8
Biotite	$K(Mg,Fe)_3(AlSi_3O_{10})(OH)_2$	dark brown, green to black	colorless	mono	2.5-3	1.61-1.70	2.95-3
Bismuth	Bi	silver-white	silver-white	hex	2-2.5	-	9.8
Boehmite	γ-AlO(OH)	white, yellow, brown	white	ortho	3	1.65	3.0-3.1
Borax	$Na_2B_4O_5(OH)_4.8H_2O$	colorless, white	colorless	mono	2-2.5	1.47	1.71
Bornite	Cu_5FeS_4	brownish-bronze	gray-black	tet	3	-	5.1
Boulangerite	$Pb_5Sb_4S_{11}$	bluish-lead-gray	brownish-gray	mono	2.5-3	-	6.23
Bournonite	$PbCuSbS_3$	steel-gray to black	steel-gray to black	ortho	2.5-3	-	5.8-5.9
Braunite	$3Mn_2O_3.MnSiO_3$	gray to black	gray to black	tet	6-6.5	-	4.7-4.8
Brochantite	$Cu_4SO_4(OH)_6$	green	green	mono	3.5-4	1.78	4.0
Brookite	TiO_2	brown to black	white to gray	ortho	5.5-6	2.6	4.1
Brucite	$Mg(OH)_2$	white, gray, green	colorless	hex	2.5	1.57	2.39
Bustamite	$(Mn,Ca,Fe)SiO_3$			trig	5.5-6.5	1.67-1.70	3.3-3.4
Calaverite	$AuTe_2$	tin-white to brass yellow	yellowish to green-gray	mono	2.5	-	9.4
Calcite	$CaCO_3$	colorless, white	colorless	hex	3	1.66	2.71
Cancrinite	$Na_6Ca_2(AlSiO_4)_6(CO_3)_2$	yellow, white, pink	white	hex	6	1.52	2.4-2.5
Carnallite	$KMgCl_3.6H_2O$	colorless, white	white	ortho	2.5	1.48	1.60
Carnotite	$K_2(UO_2)_2(VO_4)_2.3H_2O$	yellow	yellow	mono	2	1.93	4-5
Cassiterite	SnO_2	brown to black	white	tet	6-7	2.00	6.8-7.1
Celestite	$SrSO_4$	colorless, white, pale blue	colorless	ortho	3-3.5	1.62	3.95-3.97
Cerussite	$PbCO_3$	colorless, white	colorless	ortho	3-3.5	2.08	6.55
Chabazite	$Ca_2Al_2Si_4O_{12}.6H_2O$	white, flesh-red	colorless	hex	4-5	1.48	2.05-2.15
Chalcanthite	$CuSO_4.5H_2O$	blue	pale blue	trig	2.5	1.54	2.28
Chalcocite	Cu_2S	steel-gray	gray-black	ortho	2.5-3	-	5.7

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Chalcopyrite	$CuFeS_2$	brass-yellow	greenish-black	tet	3.5-4	-	4.1-4.3
Chlorargyrite	AgCl	pearl-gray, colorless	colorless	iso	2-3	2.07	~5.5
Chlorite	$Mg,Fe_3(Si,Al)_4O_{10}(OH)_2.(Mg,Fe)_3(OH)_6$	green of various shades	colorless	mono	2-2.5	1.57-1.67	2.6-2.9
Chloritoid	$(Fe,Mg,Mn)_2(Al,Fe)Al_3O_2(SiO_4)_2(OH)_4$	grassy green	white	mono	6.5	1.72-1.73	3.58-3.61
Chondrodite	$Mg_5(SiO_4)_2(F,OH)_2$	light yellow, brown	colorless	mono	6-6.5	1.60-1.63	3.1-3.2
Chromite	$FeCr_2O_4$	iron-black to brownish black	dark brown	iso	5.5	2.16	4.6
Chrysoberyl	$BeAl_2O_4$	yellowish to green	colorless	ortho	8.5	1.75	3.65-3.8
Chrysocolla	$(Cu,Al)_2H_2Si_2O_5(OH)_4.nH_2O$	light green to turquoise-blue	light blue	amor	2-4	~4	2.0-2.4
Cinnabar	HgS	red to vermillion	bright red	hex	2-2.5	2.81	8.1
Clinozoisite	$Ca_2Al_3OSi_3O_{12}(OH)$	grayish-white, green	colorless	mono	6-6.5	1.67-1.72	3.25-3.37
Cobaltite	CoAsS	silver-white	gray-black	iso	5.5-6	-	6.3
Colemanite	$CaB_3O_4(OH)_3.H_2O$	colorless, white	colorless	mono	4-4.5	1.59	2.42
Columbite	$(Fe,Mn)Nb_2O_6$	black	dark brown to black	ortho	6	-	5.3-7.3
Copper	Cu	copper-red	copper-red	iso	2.5-3	-	8.9
Cordierite	$(Mg,Fe)_2Al_4Si_5O_{18}.nH_2O$	blue, gray, brown	colorless	ortho	7-7.5	1.53-1.57	2.60-2.66
Corundum	Al_2O_3	gray, blue, pink, brown	white	trig	9	1.77	4.0
Covellite	CuS	indigo-blue to black	lead-gray to black	hex	1.5-2	-	4.6
Cristobalite	SiO_2	colorless, white	colorless	iso	7	1.48	2.32
Crocoite	$PbCrO_4$	red	orange-yellow	mono	2.5-3	2.36	5.9-6.1
Cryolite	Na_3AlF_6	colorless, white	colorless	mono	2.5	1.34	2.95-3.0
Cummingtonite	$(Fe,Mg,Mn)_7Si_8O_{22}(OH)_2$	brown	white	mono	6	1.66-1.68	3.2-3.6
Cuprite	Cu_2O	red	brownish-red	iso	3.5-4	-	6.0
Danburite	$CaB_2(SiO_4)_2$	-	-	ortho	7	1.63	2.97-3.02
Datolite	$CaB(SiO_4)(OH)$	colorless, pale green	colorless	mono	5-5.5	1.65	2.8-3.0
Diamond	C	colorless, yellow, black	colorless	iso	10	2.42	3.5
Diaspore	AlO(OH)	white, gray	colorless	ortho	6.5-7	1.72	3.35-3.45
Diopside	$Ca(Mg,Fe)Si_2O_6$	white, green	white	mono	6	1.67	3.25-3.40
Dioptase	$CuSiO_2(OH)_2$	green		hex	5	1.65	3.3
Dolomite	$CaMg(CO_3)_2$	colorless, white, pink	colorless	hex	3.5-4	1.68	2.85
Enargite	Cu_3AsS_4	gray-black	gray-black	ortho	3	-	4.4
Enstatite	$MgSiO_3$	gray-brown, green, brown	colorless	ortho	5.5	1.65	3.2-3.5

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Epidote	$Ca_2(Al,Fe)Al_2(SiO_4)_3(OH)$	yellowish to blackish green	colorless	mono	6-7	1.72-1.78	3.35-3.45
Epsomite	$MgSO_4.7H_2O$	white	white	ortho	2	1.46	1.67
Erythrite	$Co_3(AsO_4)_2.8H_2O$	red to pink	pink	mono	1.5-2.5	1.66	3.06
Euclase	$BeAl(SiO_4)(OH)$	-	-	mono	7.5	1.66	3.1
Eucryptite	$LiAlSiO_4$	-	-	hex	-	1.55	2.67
Fayalite	Fe_2SiO_4	-	-	ortho	6.5	1.86	4.39
Fluorite	CaF_2	colorless, violet, green	colorless	iso	4	1.43	3.18
Franklinite	$(Fe,Zn,Mn)(Fe,Mn)_2O_4$	iron-black	dark brown	iso	6	-	5.15
Gahnite	$ZnAl_2O_4$	dark green	colorless	iso	7.5-8	1.80	4.55
Galena	PbS	lead-gray	lead-gray	iso	2.5	-	7.6
Garnet	$(Ca,Mg,Fe,Mn)_3(Al,Fe,Cr)_2(SiO_4)_3$	brown to red	-	iso	6.5-7.5	1.71-1.88	3.5-4.3
Gersdorffite	NiAsS	silver-white	gray-black	iso	5.5	-	6.3
Gibbsite	$Al(OH)_3$	white, red, brown	white	mono	2.5-3.5	1.57	2.3-2.4
Glauconite	$(K,Na)(Fe,Mg,Al)_2(Si,Al)_4O_{10}(OH)_2$	dark green to black	pale green	mono	2	1.62	2.5-2.8
Glaucophane	$Na_2Mg_3Al_2Si_8O_{22}(OH)_2$	blue, blue-black	white	mono	6	1.62-1.67	3.0-3.3
Goethite	α-FeO(OH)	yellow-brown to dark brown	yellow-brown	ortho	5-5.5	2.39	4.37
Gold	Au	gold-yellow	gold-yellow	iso	2.5-3	-	15.0-19.3
Graphite	C	steel-gray to iron-black	black	hex	1-1.5	-	2.23
Grossular	$Ca_3Al_2Si_3O_{12}$	white, green, brown	white	iso	7-7.5	1.73	3.6
Grunerite	$Fe_7Si_8O_{22}(OH)_2$	light brown	colorless	mono	6	1.71	3.6
Gypsum	$CaSO_4.2H_2O$	colorless, white, gray	colorless	mono	2	1.52	2.32
Halite	NaCl	colorless, white	colorless	iso	2.5	1.54	2.1-2.3
Hausmannite	Mn_3O_4	brownish black	brown	tet	5.5-6	-	4.84
Hedenbergite	$CaFeSi_2O_6$	green to black	white	mono	5-6	1.73	3.40-3.55
Hematite	Fe_2O_3	red to vermillion	red-brown	hex	5.5-6.5	-	5.2
Hemimorphite	$Zn_4(Si_2O_7)(OH)_2.H_2O$	white	colorless	ortho	4.5-5	1.62	3.4-3.5
Heulandite	$CaAl_2Si_7O_{18}.6H_2O$	colorless, white	colorless	mono	3.5-4	1.48	2.18-2.20
Hornblende	$NaCa_2(Mg,Fe,Al)_5(Al,Si)_8O_{22}(OH)_2$	green, brown, black	white	mono	5-6	1.62-1.72	3.0-3.4
Humite	$(Mg,Fe)_7(SiO_4)_3(F,OH)_2$	yellow, brownish red	white	ortho	6-6.5	1.64	3.15-3.35
Hypersthene	$(Mg,Fe)SiO_3$	brown, black	white	ortho	5-6	1.68-1.73	3.4-4.0
Ilmenite	$FeTiO_3$	black	black	hex	5.5-6	-	4.7
Iron	Fe	gray	gray	iso	4	-	7.8
Jadeite	$NaAlSi_2O_6$	green, white	colorless	mono	6.5-7	1.66	3.3-3.5

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Jamesonite	$Pb_4FeSb_6S_{14}$	steel-gray to gray-black	steel-gray to gray-black	mono	2-3	-	5.5-6.0
Jarosite	$KFe_3(SO_4)_2(OH)_6$	brown	yellow	trig	3	1.82	2.9-3.3
Kainite	$KMg(Cl,SO_4).2\ 3/4\ H_2O$	-	-	mono	3	1.51	2.1
Kaolinite	$Al_2Si_2O_5(OH)_4$	white	colorless	trig	2-2.5	1.55	2.6-2.63
Kernite	$Na_2B_4O_6(OH)_2.3H_2O$	colorless, white	colorless	mono	3	1.47	1.95
Kyanite	Al_2SiO_5	blue	colorless	trig	5-7	1.72	3.56-3.66
Laumontite	$CaAl_2Si_4O_{12}.4H_2O$	white	white	mono	4	1.52	2.25-2.30
Lawsonite	$CaAl_2(Si_2O_7)(OH)_2.H_2O$	colorless, gray, pink	colorless	ortho	8	1.67	3.09
Lazulite	$(Mg,Fe)Al_2(PO_4)_2(OH)_2$	azure-blue	colorless	mono	5-5.5	1.64	3.0-3.1
Lazurite	$(Na,Ca)_8(AlSiO_4)_6(SO_4,S,Cl)_2$	azure-blue, greenish-blue	colorless	iso	5-5.5	1.50	2.4-2.45
Lepidolite	$K(Li,Al)_{2-3}(AlSi_3O_{10})(O,OH,F)_2$	pink to grayish white	colorless	mono	2.5-4	1.55-1.59	2.8-3.0
Leucite	$KAlSi_2O_6$	gray, white	colorless	iso	5.5-6	1.51	2.45-2.50
Lithiophilite	$Li(Mn,Fe)PO_4$	bluish-gray	colorless	ortho	4.5-5	1.67	3.5
Magnesite	$MgCO_3$	white, yellow	colorless	hex	3.5-5	1.70	3.0-3.2
Magnetite	Fe_3O_4	black	black	iso	6	-	5.18
Malachite	$Cu_2CO_3(OH)_2$	bright green	light green	mono	3.5-4	1.88	3.9-4.03
Manganite	MnO(OH)	steel-gray to iron-black	dark brown	mono	4	-	4.3
Marcasite	FeS_2	pale yellow	grayish-black	iso	6-6.5	-	4.9
Margarite	$CaAl_2(Al_2Si_2O_{10})(OH)_2$	pink, gray, white	colorless	mono	3.5-5	1.65	3.0-3.1
Melanterite	$FeSO_4.7H_2O$	pale green	white	mono	2	1.48	1.90
Melilite	$Ca_2Al(AlSiO_7)$ – $Ca_2Mg(Si_2O_7)$	nearly colorless, reddish brown, gray	white	tet	5-6	-	2.94-3.05
Microcline	$KAlSi_3O_8$	colorless, white	colorless	trig	6	1.53	2.54-2.56
Microlite	$Ca_2Ta_2O_6(O,OH,F)$	yellow, brown, black	yellow to brown	iso	5.5	1.92-1.99	5.48-5.56
Millerite	NiS	brass-yellow	greenish-black	hex	3-3.5	-	5.5
Mimetite	$Pb_5(AsO_4)_3Cl$	white, yellow	white	hex	3.5-4	2.1-2.2	7.2-7.3
Molybdenite	MoS_2	lead-gray	grayish-black	hex	1-1.5	-	4.7
Monazite	$(Ce,La,Y,Th)PO_4$	yellowish-brown	colorless	mono	5-5.5	1.79	5.0-5.3
Monticellite	$CaMgSiO_4$			ortho	5	1.65	3.2
Montmorillonite	$(Al,Mg)_2Si_4O_{10}(OH)_2.nH_2O$	white, gray, green-gray	white	mono	2	1.50-1.64	2.0-2.7
Muscovite	$KAl_2(AlSi_3)O_{10}(OH)_2$	colorless, pale tints	colorless	mono	2-2.5	1.60	2.76-2.88
Natrolite	$Na_2Al_2Si_3O_{10}.2H_2O$	colorless, white	colorless	ortho	5-5.5	1.48	2.25
Nepheline	$(Na,K)AlSiO_4$	colorless, gray, brown	colorless	hex	5.5-6	1.54	2.55-2.65

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Nickel Skutterudite	$(Ni,Co)As_3$	silver-white	black	iso	5.5	-	6.1-6.9
Nickeline	NiAs	pale copper-red	brown-black	hex	5-5.5	-	7.8
Niter	KNO_3	white	colorless	ortho	2	1.50	2.09-2.14
Nitratite	$NaNO_3$	colorless, white	colorless	hex	1-2	1.59	2.29
Olivine	$(Mg,Fe)_2SiO_4$	olive to grayish-green	colorless	ortho	6.5-7	1.69	3.27-4.37
Opal	$SiO_2.nH_2O$	colorless, white	colorless	amor	5-6	1.44	1.9-2.2
Orpiment	As_2S_3	lemon-yellow	yellow	mono	1.5-2	2.8	3.49
Orthoclase	$KAlSi_3O_8$	colorless, white	colorless	mono	6	1.52	2.54-2.56
Pectolite	$Ca_2NaH(SiO_3)_3$	white	colorless	trig	5	1.60	2.7-2.8
Pentlandite	$(Fe,Ni)_9S_8$	yellowish-bronze	bronze-brown	iso	3.5-4	-	4.6-5.0
Periclase	MgO	white	white	iso	5	1.73	3.58
Phenacite	Be_2SiO_4	white, colorless	colorless	hex	7.5-8	1.65	2.97-3.0
Phlogopite	$KMg_3(AlSi_3O_{10})(OH)_2$	pale brown	colorless	mono	2.5-3	1.56-1.64	2.86
Plagioclase	$(Na,Ca)(Al,Si)_4O_8$	colorless, white, gray	colorless	trig	6	1.53-1.59	2.62
Platinum	Pt	steel-gray	steel-gray	iso	4-4.5	-	14-19
Prehnite	$Ca_2Al(AlSi_3O_{10})(OH)_2$	apple-green, white	colorless	ortho	6-6.5	1.63	2.8-2.95
Proustite	Ag_3AsS_3	ruby-red	bright red	hex	2-2.5	3.09	5.55
Pumpellyite	$Ca_2MgAl_2(SiO_4)(Si_2O_7)(OH)_2.H_2O$	bluish green to nearly white	white	mono	5.5-6	-	3.18-3.23
Pyrargyrite	Ag_3SbS_3	red	red	hex	2.5	3.08	5.85
Pyrite	FeS_2	pale brass-yellow	brownish-black	iso	6-6.5	-	5.0
Pyrochlore	$(Ca,Na)_2(Nb,Ta)_2O_6(OH,F)$	yellow, brown, black	white	iso	5-5.5	-	4.2-6.4
Pyrolusite	MnO_2	iron-black	black	tet	1-2	-	4.7
Pyromorphite	$Pb_5(PO_4)_3Cl$	green, brown, yellow, gray	colorless	hex	3.5-4	2.06	6.5-7.1
Pyrope	$Mg_3Al_2Si_3O_{12}$	red to black	white	iso	7-7.5	1.71	3.6
Pyrophyllite	$Al_2Si_4O_{10}(OH)_2$	white, gray, green	colorless	mono	1-2	1.59	2.8-2.9
Pyrrhotite	$Fe_{1-x}S$	brownish-bronze	black	mono	4	-	4.6
Quartz	SiO_2	colorless, white, various colors	colorless	hex	7	1.54	2.65
Realgar	AsS	red	red to orange	mono	1.5-2	2.60	3.48
Rhodochrosite	$MnCO_3$	pink, rose-red, brown	colorless	hex	3.5-4.5	1.82	3.45-3.6
Rhodonite	$MnSiO_3$	pink, brown	colorless	trig	5.5-6	1.73-1.75	3.58-3.70
Riebeckite	$Na_2(Mg,Fe)_3Fe_2Si_8O_{22}(OH)_2$	dark blue, black	blue-gray	mono	6	1.66-1.71	3.3-3.6
Romanechite	$BaMn_9O_{16}(OH)_4$	black	black	ortho	5-6	-	3.7-4.7

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Rutile	TiO_2	reddish-brown	pale brown	tet	6-6.5	2.61	4.18-4.25
Scapolite	$3NaAlSi_3O_8.NaCl$ – $3CaAlSi_2O_8.CaCO_3$	white, pink, gray	colorless	tet	5-6	1.55-1.60	2.65-2.74
Scheelite	$CaWO_4$	white, yellow, brown	colorless	tet	4.5-5	1.92	5.9-6.1
Serpentine	$Mg_3Si_2O_5(OH)_4$	shades of green	colorless	mono	2-5	1.55	2.3-2.66
Shattuckite	$Cu_5(SiO_3)_4(OH)_2$	blue		ortho	-	1.78	3.8
Siderite	$FeCO_3$	light to dark brown	yellow, brown	hex	3.5-4	1.88	3.83-3.88
Sillimanite	Al_2SiO_5	white, brown, gray	colorless	ortho	6-7	1.66	3.23
Silver	Ag	silver-white	silver-white	iso	2.5-3	-	10.5
Skutterudite	$(Co,Ni)As_3$	silver-white	black	iso	5.5-6	-	6.1-6.9
Smithsonite	$ZnCO_3$	green, blue, white	colorless	hex	5	1.85	4.35-4.40
Sodalite	$Na_8(AlSiO_4)_6Cl_2$	blue, white	colorless	iso	5.5-6	1.48	2.15-2.3
Sperrylite	$PtAs_2$	tin-white	black	iso	6-7	-	10.6
Spessartine	$Mn_3Al_2Si_3O_{12}$	orange, red, brown	white	iso	7-7.5	1.80	4.0-4.2
Sphalerite	ZnS	yellow-brown to black	white to yellow-brown	iso	3.5	2.37	3.9-4.1
Spinel	$MgAl_2O_4$	red, black, blue, green, brown	colorless	iso	8	1.72	3.6-4.0
Spodumene	$LiAlSi_2O_6$	white, gray, pink, green	colorless	mono	6.5-7	1.67	3.15-3.20
Staurolite	$Fe_2Al_9O_6(SiO_4)_4(O,OH)_2$	red-brown	colorless	ortho	7-7.5	1.75	3.65-3.75
Stibnite	Sb_2S_3	lead-gray to black	lead-gray to black	ortho	2	-	4.5
Stilbite	$NaCa_2Al_5Si_{13}O_{36}.14H_2O$	white	colorless	mono	3.5-4	1.50	2.1-2.2
Stilpnomelane	$K(Fe,Mg)_6Si_8Al(O,OH)_{27}.2\text{-}4H_2O$	black, yellowish to reddish brown	white	mono	3-4	1.58-1.74	2.59-2.96
Stromeyerite	$(Ag,Cu)_2S$	steel-gray	-	ortho	2.5-3	-	6.2-6.3
Strontianite	$SrCO_3$	colorless, white	colorless	ortho	3.5-4	1.67	3.7
Sulfur	S	yellow	colorless	ortho	1.5-2.5	2.04	2.05-2.09
Sylvanite	$(Au,Ag)Te_2$	tin-white	gray	mono	2	-	8-8.2
Sylvite	KCl	colorless, white	colorless	iso	2	1.49	1.99
Talc	$Mg_3Si_4O_{10}(OH)_2$	white, green, gray	colorless	mono	1	1.59	2.7-2.8
Tantalite	$(Fe,Mn)Ta_2O_6$	black	dark brown to black	ortho	6	-	5.3-7.3
Tennantite	$Cu_{12}As_4S_{13}$	black	brown to black	iso	3-4.5	-	4.6-5.1
Tetrahedrite	$Cu_{12}Sb_4S_{13}$	grayish black	black	iso	3-4.5	-	4.7-5.0
Thorite	$ThSiO_4$	brown to black	white	tet	5	1.8	5.3
Titanite	$CaTiO(SiO_4)$	brown, green, yellow	colorless	mono	5-5.5	1.91	3.4-3.55

Table of Minerals (Continued)

Mineral	Composition	Color	Streak	Crystal System	Hardness	Index of Refraction	Specific Gravity
Topaz	$Al_2SiO_4(F,OH)_2$	colorless, yellow, blue	colorless	ortho	8	1.61-1.63	3.4-3.6
Torbernite	$Cu(UO_2)_2(PO_4)_2.8\text{-}12H_2O$	emerald-green to apple-green	green	tet	2-2.5	1.59	3.2-3.7
Tourmaline	$(Na,Ca)(Li,Mg,Al)(Al,Fe,Mn)_6(BO_3)_3(Si_6O_{18})(OH)_4$	black, green, brown, blue, pink	colorless	hex	7-7.5	1.64-1.68	3.0-3.25
Tremolite	$Ca_2Mg_5Si_8O_{22}(OH)_2$	white	white	mono	6	1.61	3.0
Tridymite	SiO_2	colorless	colorless	hex	7	1.47	2.26
Triphylite	$Li(Fe,Mn)PO_4$	bluish-gray	colorless	ortho	4.5-5	1.69	3.42-3.56
Turquoise	$CuAl_6(PO_4)_4(OH)_8.5H_2O$	blue, bluish-green	colorless	trig	6	1.62	2.6-2.8
Ulexite	$NaCaB_5O_6(OH)_6.5\ H_2O$	white	colorless	trig	1-2.5	1.50	1.96
Uraninite	UO_2	black	brownish-black	iso	5.5	-	9.0-9.7
Uvarovite	$Ca_3Cr_2Si_3O_{12}$	green	white	iso	7.5	1.87	3.90
Vanadinite	$Pb_5(VO_4)_3Cl$	ruby-red, brown, yellow	colorless	hex	3	2.25-2.42	6.7-7.1
Vermiculite	$(Mg,Fe,Al)_3(Al,Si)_4O_{10}(OH)_2.4H_2O$	yellow, brown, green	white	mono	1.5	1.55-1.58	2.4
Vesuvianite	$Ca_{10}(Mg,Fe)_2Al_4Si_9O_{34}(OH)_4$	green, brown, yellow, blue	colorless	tet	6.5	1.70-1.75	3.35-4.45
Vivianite	$Fe_3(PO_4)_2.8H_2O$	blue, blue-green	blue	mono	1-1.5	1.60	2.7
Wavellite	$Al_3(PO_4)_2(OH)_3.5\ H_2O$	green, white, brown	colorless	ortho	3.5-4	1.54	2.33
Willemite	Zn_2SiO_4	yellow-green, white, brown	colorless	hex	5.5	1.69	3.9-4.2
Witherite	$BaCO_3$	colorless, white	colorless	ortho	3.5	1.68	4.3
Wolframite	$(Fe,Mn)WO_4$	brown to black	black to brown	mono	4-4.5	-	7.0-7.5
Wollastonite	$CaSiO_3$	colorless, white	colorless	trig	5-5.5	1.63	2.8-2.9
Wulfenite	$PbMoO_4$	yellow, red	colorless	tet	3	2.40	6.8
Wurtzite	ZnS	brownish black	brown	hex	3.5-4	2.35	4.09
Xenotime	YPO_4	yellowish to reddish brown	white	tet	4-5	-	4.4-5.1
Zincite	ZnO	red to orange-yellow	orange-yellow	hex	4-4.5	2.01	5.68
Zircon	$ZrSiO_4$	brown, gray, colorless	colorless	tet	7.5	1.92-1.96	4.68
Zoisite	$Ca_2Al_3Si_3O_{12}(OH)$	gray, green, pink	white	ortho	7	1.69	3.3

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