

	DHZ page	MINERAL	SYMMETRY	SHAPE	COLOUR/ (PLEOCHROIC)	CLEAVAGE	RELIEF	PARALLEL EXTINCTION	BIREF.	OPTICAL FIGURE	Metan. OCCURENCE, Igneous
Cyclosilicates	1	Olivine	Orthorhomb		Mg - none (X) Fe - straw (V)	imperfect moderate	High	Yes	green to 2nd yellow	+82° -134°	M: — I: Basic (basalt/gabbro)
	13	Zircon	Tetragonal	pleochroic halo 	none, to pale brown (X)	imperfect	High	No	High	+Uni	M: Accessory I: Accessory
	17	Sphene	Monoclinic		yellow to brown (V)	good	V. high	No	E. high	+30°	M: Accessory I: Accessory
	21	Garnet	Cubic		pink to brown (X)	none	High	No	weak	—	M: Med → High grade I: —
	34	Sillimanite	Orthorhomb		none (X)	good	Mod.	Yes	2nd order Pink	+20°	M: Hi temp contact. I: —
Nesosilicates	38	Andalusite	Orthorhomb		none, to pink (weak)	mod.	Mod.	Symmetric	1st orange	-80°	M: Lo temp contact I: —
	41	Kyanite	Triclinic	rutile inclusions 	none, to pale blue (weak)	good	High	No but close.	1st red	-82°	M: Hi grade regional. I: —
	49	Staurolite	Monoclinic	quartz inclusions 	none, to gold (weak)	mod.	High	Yes	1st order orange to red	+85°	M: Med. grade regional. I: —
	52	Chloritoid	Monoclinic (also Triclinic)	often with Ti inclusions 	none, to blue green/yell (V)	good	High	No	weak	+50°	M: Lo grade regional. I: —
	63	Epidote	Monoclinic		green/yellow (weak)	perfect	High	Yes	green to yellow	-80°	M: Lo to med regional. I: late magmatic
Orthosilicates	84	Cordierite	Orthorhomb (pseudohexag)		none to pale blue (weak)	poor to moderate	Low	Yes	white to 1st yellow	(+) 80°	M: Thermal. I: in some nortites
	90	Tourmaline	Trigonal		blue/green/brown (v. strong)	none	Mod.	Yes	4th green	-Uni	M: accessory I: access. in granites.
	120	eg Augite Clinopyroxene	Monoclinic		Some pale pink/mauve (weak)	good.	Mod. to High	No	3rd blue green	+30° to 80°	M: — I: basic → intermed.
	108	Enstatite → orthoferrosilite Orthopyroxenes	Orthorhomb		none, to (Fe) green. (V)	good.	Mod to High	Yes	1st order Orange	+90° -40°	M: med → v. high grade I: ultrabasic → intermed.
	132	Aegirine	Monoclinic		pale to dark green (strong)	good.	High	Yes	4th order green yellow	-65°	M: some regional met. I: alkali syenites.
Inosilicates	163	Tremolite - Ferroactinolite	Monoclinic		none, to dark green (none to strong)	good	Mod.	Yes	2nd green - 1st yellow	-90°	M: contact & regional I: pyroxene replacement
	167	Hornblende	Monoclinic		green to lt brown (strong)	good	Mod.	No	2nd green	-Vari	M: medium regional. I: intermed → acid.
	175	Basaltic >800°C Hornblende	Monoclinic		brown to dk red (strong)	perfect	Mod. to High	Near	2nd green	-80°	M: — I: volcanic
	179	Glaucophane - Riebeckite	Monoclinic		pale to dark blue (weak to strong)	good	Mod. to High	Yes	weak, masked.	-Vari	M: regional. I: Some granites
	201	Muscovite	Monoclinic		none, to pale green (weak)	perfect	Low	Yes	3rd order	-40°	M: regional. I: pegmatites
Phyllosilicates	208	Phlogopite	Monoclinic		none, to pale brown (weak)	perfect	Mod.	Yes	3rd order	-5°	M: limestones I: peridotites
	211	Biotite	Monoclinic		brown to green (strong)	perfect	Mod.	Yes	2nd red	-5°	M: abundant. I: all igneous
	231	Chlorite	Monoclinic		none, to green. (V)	perfect	Mod.	Yes	Low	+vari	M: low grade schists I: —
	242	Serpentine	Monoclinic (often in dolomite)		none, to pale green (X)	poor to good	Low to Mod	Yes	1st yellow	-vari	M: hydrothermal I: —
	285	Alkali Feldspars	Mono/Triclinic		none (X)	perfect to imperfect	Low	No	white	-vari	M: occasional high grade I: granite, syenite, gabbro
Tectosilicates	318	Plagioclase	Triclinic		none (X)	perfect to moderate	Low	No (twins)	white	Variable	M: mainly albite. I: all igneous.
	340	Quartz	Trigonal		none (X)	none	Low	only euhedral crystals	pale yellow	+uni	M: v. common. I: abundant
	356	Nepheline	Hexagonal	often with inclusions 	none (X)	poor	Low	Yes	1st gray	-uni	M: — I: only alkaline.
	367	Leucite	Pseudoisomet.	lamellar twinning common 	none (X)	none	Mod.	No	white	—	M: — I: lava phenocrysts
	375	Sodalite	Cubic		none, to gray blue (X)	imperfect	Mod.	—	nil	—	M: — I: syenites, trachytes.
Non-Silicates	389	Analcite	Cubic	often interstitial 	none (X)	imperfect	Mod.	—	nil isotropic	—	M: — I: teschenites, some basalts
	424	Spinel	Cubic		none, to green, brown (X)	None	High	—	nil	—	M: high temp (limestones) spec. I: Al. rich xenoliths.
	476	Calcite	Trigonal	75° 	none (X)	three perfect	Low/High (twinkles)	Symmetrical to cleavage	extremely high,	-uni	M: limestones. Veins. I: alkaline ign/hydrothermal
	504	Apatite	Hexagonal		none (occasional)	imperfect	Mod.	Yes	1st gray	—	M: accessory (limestones) I: common accessory