

Igneous Rocks						
	Name	Formula	H	Color	Fracture/Cleavage	Other Diagnostic Properties
felsic	Quartz	SiO <sub>2</sub>	7	colorless, white, gray	conchoidal fracture	glassy, hexagonal crystal form is distinctive when present
	Potassium Feldspar (Orthoclase)	KAlSi <sub>3</sub> O <sub>8</sub>	6	white, pink, buff gray	2 directions at about 90°	exsolution lamellae present in some samples
	Plagioclase Feldspar	NaAlSi <sub>3</sub> O <sub>8</sub> CaAl <sub>2</sub> Si <sub>2</sub> O <sub>8</sub>	6	white, pink, gray, dk gray	2 directions at about 90°	polysynthetic (albite) twinning on best cleavage surfaces
	Muscovite (mica)	KAl <sub>2</sub> AlSi <sub>3</sub> O <sub>10</sub> (OH) <sub>2</sub>	2-2.5	colorless	1 direction perfect cleavage	color is distinctive
mafic	Biotite (mica)	K(Mg,Fe) <sub>3</sub> AlSi <sub>3</sub> O <sub>10</sub> (OH) <sub>2</sub>	2-2.5	black	1 direction perfect cleavage	color is distinctive
	Amphibole (hornblende)	Ca <sub>2</sub> (Mg,Fe) <sub>4</sub> Al[AlSi <sub>7</sub> O <sub>22</sub> ](OH) <sub>2</sub>	5-6	dk green, black	2 good cleavages at about 120°	elongate crystals, better cleavage than pyroxene.
	Pyroxene	Ca(Mg,Fe)Si <sub>2</sub> O <sub>6</sub> (Mg,Fe) <sub>2</sub> Si <sub>2</sub> O <sub>6</sub>	5-6	green, gray green, white	2 poor cleavages at about 90°	poor cleavage, stubby crystals
	Olivine	(Mg,Fe) <sub>2</sub> SiO <sub>4</sub>	6.5-7	green, yellow green	conchoidal fracture	glassy, color usually distinctive
Sedimentary Rocks						
	Name	Formula	H	Color	Fracture/Cleavage	Other Diagnostic Properties
	Quartz	SiO <sub>2</sub>	7	colorless, white, gray	conchoidal fracture	glassy, hexagonal crystal form is distinctive when present
	Calcite	CaCO <sub>3</sub>	3	colorless, white	3 directions not at 90°	rhombic cleavage fragments, reacts (fizzes) with HCl.
	Dolomite	CaMg(CO <sub>3</sub> ) <sub>2</sub>	3.5-4	white, gray, pink	3 directions not at 90°	reacts (fizzes) less vigorously with HCl (compared to calcite) or only when powdered
	Kaolinite	Al <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> (OH) <sub>4</sub>	2	white	1 direction perfect cleavage	sticks to tongue
	Hematite	Fe <sub>2</sub> O <sub>3</sub>	2-6	red, dk red, metallic gray	weak parting, typically not expressed	red streak, specular hematite shows bright gray metallic luster
	Limonite	FeO•OH•nH <sub>2</sub> O	3.5-4	yellow red	n.a.	yellow-red streak
	Halite	NaCl	2.5	colorless	3 directions at 90°	salty taste, cubic cleavage fragments
Gypsum	CaSO <sub>4</sub> •2H <sub>2</sub> O	2	colorless, white	1 good and 2 poor cleavages	simple twins common in crystals	

Metamorphic Rocks <sup>a</sup>						
Name	Formula	H	Color	Fracture/Cleavage	Other Diagnostic Properties	
Talc	$Mg_3Si_4O_{10}(OH)_2$	1	white	1 direction perfect cleavage	greasy feel	
Chlorite	$Mg_5Al_2Si_3O_{10}(OH)_8$	2-2.5	green	1 direction perfect cleavage	color is distinctive	
Garnet	$(Fe,Mg,Ca)_3Al_2Si_3O_{12}$	6.5-7.5	red, pink, green, black	conchoidal fracture	dodecahedron form common in crystals	
Kyanite	$Al_2SiO_5$	5.5-7	Sky blue to white, also grey, green, black	1 perfect and 1 good direction cleavage	Stubby blades. The long direction of cleavage planes can be scratched with a knife; the perpendicular cannot.	
Sillimanite	$Al_2SiO_5$	6.5-7.5	Colorless to white	1 good cleavage	Small fibers or needles with cleavage perpendicular to long axis.	
Andalusite	$Al_2SiO_5$	6.5-7.5	Usually pink	1 direction good 1 direction poor cleavage	Rod shaped with almost square cross-sections. Chiastolite cross.	
Staurolite	$(Fe,Mg)_2Al_6Si_4O_{22}(OH)_2$	7	brown	1 direction poor	Interpenetration twins common, elongate crystals	
Magnetite*	$Fe_3O_4$	5.5-6.5	black, metallic	weak parting, typically not expressed	magnetic	

<sup>a</sup> Most of the minerals above also occur in metamorphic rocks.

\* common igneous mineral as well.