

DETERMINATIVE TABLE FOR MINERALS WITH NONMETALLIC LUSTER

1. Luster	2. Color	3. Hardness	4. Cleavage	Detailed description	Mineral name and chemistry	
Nonmetallic luster	Light color	Harder than glass	prominent	Two directions of cleavage at 90°; white to gray; pearly to vitreous luster; striations on some cleavage planes; H=6	PLAGIOCLASE FELDSPAR NaAlSi ₃ O ₈ - CaAl ₂ Si ₂ O ₈	
			absent	Two dir. of cleavage at 90°; white to light pink; pearly to vitreous luster; H=6; D=2.5; varieties include orthoclase and microcline	POTASSIUM FELDSPAR KAlSi ₃ O ₈	
			absent	Various shades of green; commonly in aggregates of small glassy grains; translucent; H=6.5-7; D=3.5-4.5	OLIVINE Fe ₂ SiO ₄ - Mg ₂ SiO ₄	
		Softer than glass	prominent	absent	Conchoidal fracture; vitreous luster; hexagonal crystals; translucent; variously colored varieties; H=7; D=2.6	QUARTZ SiO ₂
				absent	Two directions of cleavage; colorless, white, gray, or pale blue or red; H=3-3.5; D=4.5 (heavy for nonmetallic mineral)	BARITE BaSO ₄
				absent	Three directions of cleavage at approx. 75° and 105°; colorless to white, gray; translucent to opaque; H=3; effervesces in HCl	CALCITE CaCO ₃
				absent	Four directions of cleavage; colorless, blue, yellow; translucent; cubic crystals; H=4; D=3	FLUORITE CaF ₂
				absent	Perfect cleavage in 1 dir., poor in 2 others; colorless to white; translucent to opaque; nonelastic sheets or fibrous; H=2; D=2.3	GYPSUM CaSO ₄ •2H ₂ O
				absent	Cubic cleavage (3 dir.); colorless to white; soluble in water; H=2-2.5; D=2; salty taste	HALITE NaCl
	absent	absent	absent	Perfect cleavage in 1 direction; thin elastic sheets; translucent and colorless in thin sheets; H=2-3; D=2.8	MUSCOVITE KAl ₃ AlSi ₃ O ₁₀ (OH) ₂	
			absent	White to pale green; soapy or greasy feel; pearly luster; cleavage not apparent in compact masses; H=1-2; D=2.8; <i>aka</i> soapstone	TALC Mg ₃ Si ₄ O ₁₀ (OH) ₂	
			absent	White; soft earthy masses; earthy odor; becomes plastic when moistened; H=1.2; may be mistaken for talc	KAOLINITE Al ₄ Si ₄ O ₁₀ (OH) ₈	
	Dark color	Harder than glass	prominent	Two directions of cleavage at approx. 60° and 120°; dark green to black; commonly as long prismatic crystals; H>glass; D=3-3.5	AMPHIBOLE Na, Ca, Mg, Fe, Al silicates	
				absent	Two directions of cleavage at approx. 90°; dark gray; pearly to vitreous luster; striations on some cleavage planes; H>glass	PLAGIOCLASE FELDSPAR NaAlSi ₃ O ₈ - CaAl ₂ Si ₂ O ₈
				absent	Two directions of cleavage at approx. 90°; dark green to black; commonly as short prismatic crystals; H>glass; D=3-3.5	PYROXENE Na, Ca, Mg, Fe, Al silicates
		Harder than glass	absent	absent	Red, brown, green or yellow; fracture may resemble cleavage; 12-sided crystals with rhomb-shaped faces; H=7-7.5; D=3.5-4.5	GARNET Ca, Mg, Fe, Al silicates
				absent	Various shades of green; commonly in aggregates of small glassy grains; translucent; H=6.5-7; D=3.5-4.5	OLIVINE Fe ₂ SiO ₄ - Mg ₂ SiO ₄
				absent	Conchoidal fracture; vitreous luster; hexagonal crystals; translucent; variously colored varieties; H=7; D=2.6	QUARTZ SiO ₂
Softer than glass		prominent	absent	Perfect cleavage in 1 direction; thin elastic sheets; brown to black; translucent in thin sheets; H=2-3; D=3-3.5	BIOTITE K(Fe,Mg) ₂ AlSi ₃ O ₁₀ (OH) ₂	
			absent	Four directions of cleavage; blue, purple; translucent; cubic crystals; H=4; D=3	FLUORITE CaF ₂	
			absent	Six dir. of cleavage; brown to yellowish brown; submetallic luster; yellowish streak with sulfur odor; H=3.5-4; D=4	SPHALERITE ZnS	
Softer than glass	absent	absent	Red; soft earthy masses; red streak; H=1.5; oolitic hematite and hematitic rock may be harder	HEMATITE Fe ₂ O ₃		
		absent	Yellow to brown; soft earthy masses; yellowish brown streak; H=1.5; limonitic rock may be harder	LIMONITE Fe ₂ O ₃ • H ₂ O		