

Table 1.3

Mineral Catalog (Continued)

<p>HORNBLLENDE (Amphibole) Ca, Na, Mg, Fe, Al Silicate Monoclinic</p>	<p>Luster: nonmetallic, vitreous. Color: dark green, dark brown, black. Hardness: 5.0–6.0. Cleavage: perfect on two planes meeting at 56° and 124°. Streak: gray or pale green. G = 3.0–3.5. Habit: long, six-sided crystals common. Color: usually darker than other minerals in amphibole group. <i>Tremolite-Actinolite</i>, also a member of the amphibole group, is lighter in color and commonly is fibrous or asbestiform, may range in color from white to green, and has white streak. Uses: no commercial use. <i>Nephrite</i>, the amphibole form of jade, is used for jewelry.</p>
<p>KAOLINITE Hydrous Aluminosilicate Triclinic</p>	<p>Luster: nonmetallic, dull to earthy. Color: white, often stained by impurities to red, brown, or gray. Hardness: 2.0–2.5. Cleavage: perfect basal but rarely seen because of small grain size. Streak: white. G = 2.6–2.7. Habit: found in earthy masses. Earthy odor when damp. NOTE: Kaolinite is used here as an example of the clay minerals. It normally is not possible to distinguish the various clay minerals on the basis of their physical properties. Other clay minerals include <i>montmorillonite</i> (smectite), <i>illite</i>, and <i>vermiculite</i>. Uses: kaolinite is used as a paper filler and ceramic; montmorillonite for drilling muds; illite has no industrial use; and vermiculite is mined and processed for use as a lightweight aggregate, potting soils, and as insulation.</p>
<p>K-FELDSPAR (Orthoclase, Sanidine, Microcline) K(AlSi₃O₈) Monoclinic (Orthoclase, Sanidine) Triclinic (Microcline)</p>	<p>Luster: nonmetallic, vitreous. Color: varies, white, cream, or pink; <i>sanidine</i>, the high-temperature variety, is usually colorless. Hardness: 6. Cleavage: two planes at nearly right angles. Streak: white. G = 2.6. Habit: crystals not common. Has glossy appearance. Distinguished from other feldspars by absence of twinning striations. NOTE: <i>Microcline</i> variety is triclinic. When light green the color is diagnostic, more commonly white, green, pink. Occurrence helpful; most K-feldspar in pegmatites is microcline. Uses: commonly used in ceramics, glassmaking, and in scouring and cleansing products.</p>
<p>LIMONITE (see Goethite)</p>	
<p>MAGNETITE FeFe₂O₄ Cubic (Isometric)</p>	<p>Luster: metallic. Color: black. Hardness: 5.5–6.0. Cleavage: none, some octahedral parting. Streak: black. G = 5.2. Habit: usually in granular masses. Strongly magnetic, some specimens show polarity (lodestones). Widespread occurrence in a variety of rocks. Uses: used commercially as iron ore.</p>
<p>MUSCOVITE K, Al Silicate Monoclinic</p>	<p>Luster: nonmetallic, vitreous to silky or pearly. Color: colorless to shades of green, gray, or brown. Hardness: 2.5–3.5. Cleavage: perfect basal yielding thin sheets that are flexible and elastic; may show some parting. Streak: white. G = 2.8–2.9. Habit: usually in small flakes or lamellar masses. Commercial deposits are generally found in granite pegmatites. Uses: variety of industrial uses.</p>
<p>OLIVINE (Mg, Fe)₂SiO₄ Orthorhombic</p>	<p>Luster: nonmetallic, vitreous. Color: olive-green to yellowish; nearly pure Mg-rich varieties may be white (forsterite) and nearly pure Fe-rich varieties brown to black (fayalite). Hardness: 6.5–7. Cleavage: indistinct. Streak: white or gray. G = 3.2–4.4. Habit: usually in granular masses. Crystals uncommon. A mineral of basic and ultrabasic rocks. Uses: forsterite variety used for refractory bricks.</p>
<p>PLAGIOCLASE Ranges in composition from Albite, NaAlSi₃O₈, to Anorthite, CaAl₂Si₂O₈ Triclinic</p>	<p>Luster: nonmetallic, vitreous. Color: white or gray, reddish, or reddish brown. Hardness: 6.0–6.5. Cleavage: two planes at close to right angles, twinning striations common on basal cleavage surfaces. Streak: white. G = 2.6–2.8. Habit: crystals common for Na-rich varieties, uncommon for intermediate varieties, rare for anorthite. Twinning common. Twinning striations on basal cleavage useful to distinguish from orthoclase. Some varieties show play of colors. Uses: sodium-rich varieties mined for use in ceramics.</p>
<p>PYRITE FeS₂ Cubic (Isometric)</p>	<p>Luster: metallic. Color: brass-yellow, may be iridescent if tarnished. Hardness: 6–6.5. Cleavage: none, conchoidal fracture. Streak: greenish or brownish black. G = 4.8–5.0. Habit: crystals common. Usually cubic with striated faces. Crystals may be deformed. Massive granular forms also. Most widespread sulfide mineral. Known as “fool’s gold.” Uses: source of sulfur for sulfuric acid. NOTE: <i>Marcasite</i> (FeS₂) is orthorhombic, usually paler in color, and is commonly altered.</p>
<p>QUARTZ SiO₂ Hexagonal</p>	<p>Luster: nonmetallic, vitreous. Color: typically colorless or white, but almost any color may occur. Hardness: 7. Cleavage: none, conchoidal fracture. Streak: white, but difficult to obtain on streak plate. G = 2.65. Habit: prismatic crystals common with striations perpendicular to the long dimension; also a variety of massive forms. Color variations lead to varieties called smoky quartz, rose quartz, milky quartz, and amethyst. Common mineral in all categories of rocks. Uses: wide variety of commercial uses including glassmaking, electronics, and in construction products.</p>