



Minerals

Biotite

$\text{K}(\text{Mg}, \text{Fe}^{+2})_3(\text{Al}, \text{Fe}^{+3})\text{Si}_3\text{O}_{10}(\text{OH}, \text{F})_2$ (Mica Group)

Crystallography:

Monoclinic; $2/m$. Usually in irregular foliated masses, and rarely in tabular or short prismatic crystals.

Physical Properties:

Cleavage: Basal, $\{001\}$ perfect; cleavage flakes flexible and elastic.

Hardness: 5.0.

Specific Gravity: 2.8-3.2.

Luster: Splendent.

Color: Usually dark green, brown to black. Thin sheets usually have a smoky color. Transparent to translucent.

Streak: White.

Composition/Features:

A Mica Group mineral with composition similar to phlogopite, but with a higher substitution of iron in biotite. A complete series exists between these two micas. Biotite is characterized by its perfect cleavage in one direction (splits easily into sheets) and its dark color. Fusible with difficulty at 5.

Occurrence/Use:

Biotite is a common rock-forming mineral found in a wide range of igneous and metamorphic rocks. Unlike several other micas, it is little used commercially.