



Minerals

Illite

$(K, H_3O)(Al, Mg, Fe)_2(Si, Al)_4O_{10}[(OH)_2, H_2O]$

Crystallography:

Monoclinic. Crystals not distinguishable; usually in clay-like masses, either compact or friable.

Physical Properties:

Cleavage: {001} perfect, but not observable to the unaided eye.

Usually unctuous and plastic.

Hardness: 2.0 (+/-).

Specific Gravity: about 2.6.

Luster: Dull, earthy.

Color: Earthy gray, green, white. Translucent to opaque.

Streak: White.

Composition/Features:

Illite is a general term for a group of mica-like clay minerals. Essentially hydrous aluminum silicates, the illites differ from micas in having less substitution for Al or Si, in containing more water, and in having K partly replaced by Ca and Mg. Recognized by its clay-like character, but usually requires X-ray tests to distinguish it from other clay minerals.

Occurrence/Use:

Illite is the primary constituent of many shales, and forms chiefly by the weathering of hydrothermal alteration of aluminum silicates.