

Biotite

Mineral Reference Profile • Silicates

Chemical / compositional reference

$K(Mg,Fe)_{2-3}AlSi_3O_{10}(OH)_2$

Mohs hardness

2.5–3

Physical properties

Extremely diverse; properties reflect polymerization of silica tetrahedra, elemental substitutions and crystal structure.

Geological occurrence

Silicates dominate Earth's crust and occur in igneous, metamorphic, sedimentary and hydrothermal settings.

Economic, technological and cultural relevance

Construction, ceramics, glass, refractories, abrasives, gemstones, lithium resources, insulation and countless technological applications.

Museum learning value

In the museum context, Biotite is used to connect observation with mineral identification, geological formation, material science, responsible resource use and the relationship between natural resources and society. Specimen-specific analytical data should always be read from the verified museum catalogue or laboratory record.