

Crystal Data: Monoclinic. *Point Group:* 2/m. As tabular crystals, to 0.2 mm.

Physical Properties: *Cleavage:* Perfect on {001}. *Fracture:* None. *Tenacity:* Brittle. *Hardness* = 3
D(meas.) = 3.69(8) D(calc.) = 3.59

Optical Properties: Translucent. *Color:* Dark green. *Streak:* Green. *Luster:* Vitreous.
Optical Class: Biaxial(-). $n(\text{calc.}) = 1.6939$ $2V = \sim 20^\circ$ *Pleochroism:* Strong; X = grass green, Y = dark brown-green, Z = dark greenish gray-brown. *Absorption:* $X \ll Z < Y$.

Cell Data: *Space Group:* C2/m. $a = 5.389(1)$ $b = 9.337(2)$ $c = 10.054(2)$ $\beta = 100.53(2)^\circ$ $Z = 2$

X-ray Powder Pattern: Broken Hill mine, near Aggeneys, northern Cape Province, South Africa.
2.651 (100), 2.176 (40), 1.551 (30), 1.659 (25), 1.529 (25), 3.655 (15), 2.446 (15)

| Chemistry: | (1) |
|--------------------------------|--------|
| SiO ₂ | 28.86 |
| TiO ₂ | 2.68 |
| Al ₂ O ₃ | 15.80 |
| Fe ₂ O ₃ | 2.35 |
| FeO | 24.27 |
| MnO | 1.14 |
| MgO | 5.84 |
| BaO | 14.14 |
| SrO | 0.07 |
| Na ₂ O | 0.26 |
| K ₂ O | 3.18 |
| F | 2.43 |
| Total | 100.01 |

(1) Broken Hill mine, northern Cape Province, South Africa; average electron microprobe analysis, Fe²⁺/Fe³⁺ from high-performance ion chromatography, total corrected for -O = F; corresponds to (Ba_{0.49}K_{0.34}Na_{0.04})_{Σ=0.85}(Fe²⁺_{1.72}Mg_{0.74}Mn_{0.08}Fe³⁺_{0.15}Ti_{0.17})_{Σ=2.87}(Si_{2.44}Al_{1.56})_{Σ=4.00}O₁₀[(OH)_{1.35}F_{0.65}]_{Σ=2.00}.

Polymorphism & Series: Kinoshitalite-ferrokinoshitalite solid solution. 1M polytype.

Mineral Group: Brittle mica.

Occurrence: In massive Pb-Zn-Cu-Ag sulfide orebodies in banded iron formation that underwent high-grade metamorphism.

Association: Quartz, magnetite, spessartine-rich garnet, apatite, sillimanite, ferroan gahnite, Mn-rich grunerite, manganogrunerite, manganooan fayalite, Mn-rich pyroxferroite.

Distribution: At the Broken Hill mine, near Aggeneys, northern Cape Province, South Africa.

Name: Prefix, *ferro*, indicates the Fe²⁺-dominant analog of *kinoshitalite*.

Type Material: Department of Geological Sciences, University of Cape Town, South Africa.

References: (1) Guggenheim, S. and H.E. Frimmel (1999) Ferrokinoshitalite, a new species of brittle mica from the Broken Hill Mine, South Africa; structural and mineralogical characterization. *Can. Mineral.*, 37, 1445-1452. (2) (2000) *Amer. Mineral.*, 85(10), 1561-1562 (abs. ref. 1).