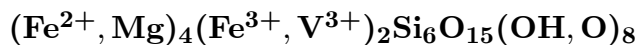


Erlianite

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. As fibers, flakes, and lathlike aggregates, to 2 cm.

Physical Properties: *Cleavage:* Perfect on {001} and {100}. *Hardness* = 3.7
D(meas.) = 3.11 D(calc.) = [3.17]

Optical Properties: Opaque. *Color:* Black; brown in thin section. *Streak:* Brownish black.
Luster: Silky.

Optical Class: Biaxial (-). *Pleochroism:* Slight; X = light brown; Y = Z = dark brown.

Orientation: X = b; Y = c; Z = a. *Dispersion:* $r < v$, weak. *Absorption:* Z = Y > X.
 $\alpha = 1.667$ $\beta = 1.674$ $\gamma = 1.679$ $2V(\text{meas.}) = 56^\circ\text{--}59^\circ$

Cell Data: *Space Group:* $Pmmn$ or $Pm2_1n$. $a = 23.20(1)$ $b = 9.20(1)$ $c = 13.18(1)$
Z = 6

X-ray Powder Pattern: Harhada mine, China.

11.5 (100), 2.89 (60), 2.61 (60), 3.05 (50), 2.52 (50), 1.560 (50), 2.42 (30)

Chemistry:

| | | | |
|--------------------------------|-------|-------------------------------|--------------|
| | (1) | | (1) |
| SiO ₂ | 38.80 | MgO | 1.00 |
| TiO ₂ | 0.38 | CaO | 0.83 |
| Al ₂ O ₃ | 0.19 | K ₂ O | 0.08 |
| Fe ₂ O ₃ | 21.26 | Na ₂ O | 0.09 |
| V ₂ O ₅ | 1.15 | H ₂ O ⁺ | 7.65 |
| FeO | 26.67 | H ₂ O ⁻ | 0.90 |
| MnO | 0.55 | P ₂ O ₅ | 0.05 |
| | | <u>Total</u> | <u>99.60</u> |

(1) Harhada mine, China; by colorimetric microanalysis, corresponds to $(\text{Fe}_{3.33}^{2+}\text{Fe}_{0.36}^{3+}\text{Mg}_{0.22}\text{Mn}_{0.07})_{\Sigma=3.98}(\text{Fe}_{1.89}^{3+}\text{V}_{0.11})_{\Sigma=2.00}(\text{Si}_{5.79}\text{Fe}_{0.14}^{3+}\text{Ti}_{0.04}\text{Al}_{0.03})_{\Sigma=6.00}\text{O}_{15}[\text{O}, (\text{OH})]_8$.

Occurrence: As coatings along fault surfaces cutting a low-grade metamorphosed volcanic-sedimentary iron formation; presumably formed in a high-pressure, low-temperature environment.

Association: Minnesotaite, stilpnomelane, quartz, magnetite, siderite, albite, deerite.

Distribution: In the Harhada iron mine, along the Jining-Erlian railway, Inner Mongolia, China.

Name: Presumably for the town of Erlian, China.

Type Material: n.d.

References: (1) Feng, X. and R. Yang (1986) Erlianite, a new vanadium- and iron-bearing silicate mineral. *Mineral. Mag.*, 50, 285–289. (2) (1987) *Amer. Mineral.*, 72, 1023–1024 (abs. ref. 1).