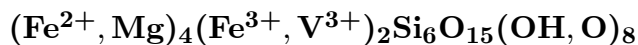


**Erlianite**

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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 <sub>2</sub>	38.80	MgO	1.00
TiO <sub>2</sub>	0.38	CaO	0.83
Al <sub>2</sub> O <sub>3</sub>	0.19	K <sub>2</sub> O	0.08
Fe <sub>2</sub> O <sub>3</sub>	21.26	Na <sub>2</sub> O	0.09
V <sub>2</sub> O <sub>5</sub>	1.15	H <sub>2</sub> O <sup>+</sup>	7.65
FeO	26.67	H <sub>2</sub> O <sup>-</sup>	0.90
MnO	0.55	P <sub>2</sub> O <sub>5</sub>	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).