Erlianite $(Fe^{2+},Mg)_4(Fe^{3+},V^{3+})_2Si_6O_{15}(OH,O)_8$

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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(meas.) = 56°–59°

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_2O_3	0.19	K_2O	0.08
Fe_2O_3	21.26	Na_2O	0.09
V_2O_5	1.15	H_2O^+	7.65
FeO	26.67	H_2O^-	0.90
MnO	0.55	P_2O_5	0.05
		Total	99.60

(1) Harhada mine, China; by colorimetric microanalysis, corresponds to $(Fe^{2+}_{3.33}Fe^{3+}_{0.36}Mg_{0.22}Mn_{0.07})_{\Sigma=3.98}(Fe^{3+}_{1.89}V_{0.11})_{\Sigma=2.00}(Si_{5.79}Fe^{3+}_{0.14}Ti_{0.04}Al_{0.03})_{\Sigma=6.00}O_{15}[O,(OH)]_8$.

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).

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