Ferrisepiolite $(Fe^{3+},Fe^{2+},Mg)_4(Si,Fe^{3+})_6O_{15}(O,OH)_2 \cdot 6H_2O$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. As poorly crystallized, earthy, granular microlites or as well-crystallized, fibrous aggregates, to several cm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: n.d. *Hardness* = 2-2.5 D(meas.) = n.d. D(calc.) = 2.51 [fibrous] - 2.69 [granular]

Optical Properties: Earthy to translucent. *Color*: Brown to red-brown. *Streak*: Brown. *Luster*: Non-metallic.
Optical Class: n.d. α' = 1.592-1.620 γ' = 1.628(8) *Orientation*: $Z \parallel c$, X (or Y) $\parallel a$.
Pleochroism: Distinct [fibrous], light red-brown (for light vibrating ⊥ to the fiber axis) to dark red-brown (for light vibrating ∥ to the fiber axis).

Cell Data: *Space Group*: *Pncn*. a = 13.638(9) b = 27.011(30) c = 5.233(8) [earthy]; a = 13.619(8) b = 26.959(26) c = 5.241(7) [fibrous] Z = 4

X-ray Powder Pattern: Saishitang deposit, Xinghai County, Qinghai Province, China. [Fibrous] 12.163 (100), 2.561 (45), 4.298 (35), 2.436 (31), 3.394 (29), 3.751 (15), 2.260 (14)

Chemistry:

	(1)	(2)
SiO_2	39.77	47.52
Fe_2O_3	35.29	22.30
FeO	7.35	5.00
MgO	1.78	8.61
MnO	0.48	0.24
CaO	0.77	0.38
Na_2O	0.20	0.09
H_2O(calc.)	[14.10]	[15.34]
H_2O(meas.)	14.73	15.47
Total	99.74	99.48

(1) Saishitang deposit, Xinghai County, Qinghai Province, China; average of 4 electron microprobe and wet chemical analyses of earthy material, Fe^{3+}/Fe^{2+} by wet chemical analysis, granular material; corresponding to $(Fe^{3+}_{2.64}Fe^{2+}_{0.80}Mg_{0.35}Ca_{0.11}Mn_{0.05}Na_{0.05})_{\Sigma=4.00}(Si_{5.18}Fe^{3+}_{0.82})_{\Sigma=6.00}O_{15}[O_{1.77}(OH)_{0.23}]_{\Sigma=2.00} \cdot 6H_2O$. (2) Saishitang deposit, China, fibrous material; corresponding to $(Fe^{3+}_{1.84}Fe^{2+}_{0.51}Mg_{1.56}Ca_{0.05}Mn_{0.02}Na_{0.02})_{\Sigma=4}(Si_{5.79}Fe^{3+}_{0.21})_{\Sigma=6.00}O_{15}[O_{1.60}(OH)_{0.40}]_{\Sigma=2.00} \cdot 6H_2O$.

Occurrence: In late-stage veinlets cutting copper-sulfide ores hosted in layered hedenbergite-andradite-actinolite-vesuvianite contact metamorphic rocks (skarns).

Association: Calcite, siderite.

Distribution: From the Saishitang copper skarn deposit, Xinghai County, Qinghai Province, China.

Name: As the Fe^{3+}-dominant analog of *sepiolite*.

Type Material: Geological Museum of China, Beijing (M11786).

References: (1) Xiangping, G., X. Xiande, W. Xiangbin, Z. Guchang, L. Jianqing, H. Kenich, and H. Jiwu (2013) Ferrisepiolite: a new mineral from Saishitang copper skarn deposit in Xinghai County, Qinghai Province, China. Eur. J. Mineral., 25(2), 177-186. (2) (2015) Amer. Mineral., 100, 1324 (abs. ref. 1).