Ferrisepiolite  \((\text{Fe}^{3+},\text{Fe}^{2+},\text{Mg})_4(\text{Si},\text{Fe}^{3+})_6\text{O}_{15}(\text{O},\text{OH})_2\cdot 6\text{H}_2\text{O}\)

**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.  
\(\alpha' = 1.592-1.620\)  
\(\gamma' = 1.628(8)\)  
Orientation: \(Z \parallel c, X\text{ (or } Y\parallel a)\).  

**Pleochroism:** Distinct [fibrous], light red-brown (for light vibrating \(\perp\) to the fiber axis) to dark red-brown (for light vibrating \(\parallel\) 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:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
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<tbody>
<tr>
<td>SiO₂</td>
<td>39.77</td>
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<tr>
<td>Fe₂O₃</td>
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<td>22.30</td>
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<td>FeO</td>
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<td>5.00</td>
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<tr>
<td>MgO</td>
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<td>MnO</td>
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<td>CaO</td>
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<tr>
<td>Na₂O</td>
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<td>0.09</td>
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<tr>
<td>H₂O(calc.)</td>
<td>[14.10]</td>
<td>[15.34]</td>
</tr>
<tr>
<td>H₂O(meas.)</td>
<td>14.73</td>
<td>15.47</td>
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<tr>
<td>Total</td>
<td>99.74</td>
<td>99.48</td>
</tr>
</tbody>
</table>

(1) Saishitang deposit, Xinghai County, Qinghai Province, China; average of 4 electron microprobe and wet chemical analyses of earthy material, \(\text{Fe}^{3+}/\text{Fe}^{2+}\) by wet chemical analysis, granular material; corresponding to \((\text{Fe}^{3+}_{2.64}\text{Fe}^{2+}_{0.80})\text{Mg}_{0.35}\text{Ca}_{0.11}\text{Mn}_{0.05}\text{Na}_{0.05}\text{Fe}^{3+}_{0.82})\text{Si}_{5.18}\text{O}_{15}\text{Si}_{0.82}\text{O}_{15}\text{O} \cdot 6\text{H}_2\text{O}\).  
(2) Saishitang deposit, China, fibrous material; corresponding to \((\text{Fe}^{3+}_{1.84}\text{Fe}^{2+}_{0.51})\text{Mg}_{1.56}\text{Ca}_{0.05}\text{Mn}_{0.02}\text{Na}_{0.02})\text{Fe}^{3+}_{0.21})\text{Si}_{5.78}\text{O}_{15}\text{O}_{0.40})\text{Si}_{0.21}\text{O}_{2.00}•6\text{H}_2\text{O}\).

**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 \(\text{Fe}^{3+}\)-dominant analog of sepiolite.

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

**References:**  