Natrowalentaite [Fe\(^{3+}0.5\)Na\(_{0.5}(\text{H}_2\text{O})_6\)]Na\(_{\text{As}^{3+}2}(\text{Fe}^{3+}2.33\text{W}^{6+}0.67)(\text{PO}_4)_2\text{O}_7\]

**Crystal Data:** Orthorhombic. *Point Group: 2/m 2/m 2/m.* As blades flattened on {100} and elongated along [010] to 200 μm and exhibiting {100}, {001} and {011}.


**Optical Data:**
- **Color:** Bright greenish yellow. *Streak:* n.d.
- **Luster:** Vitreous.
- **_optical class:** Biaxial (-). 
  - \(\alpha = 1.650(3)\)  
  - \(\beta = 1.728(3)\)  
  - \(\gamma = 1.772(3)\)  
- **2V(meas.) = 71(2)°**
- **Dispersion:** Distinct, \(r > v\).

**Cell Data:**
- **Space Group:** Imma.
- **a = 25.770(3)\) \(b = 7.3250(8)\) \(c = 10.522(1)\) \(Z = 4\)

**X-ray Powder Pattern:**
- Griffiths Find gold deposit, Western Australia.

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Measured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na(_2)O</td>
<td>3.52</td>
<td></td>
</tr>
<tr>
<td>K(_2)O</td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td>CaO</td>
<td>1.76</td>
<td></td>
</tr>
<tr>
<td>Fe(_2)O(_3)</td>
<td>21.4</td>
<td></td>
</tr>
<tr>
<td>WO(_3)</td>
<td>17.0</td>
<td></td>
</tr>
<tr>
<td>P(_2)O(_5)</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>As(_2)O(_3)</td>
<td>21.7</td>
<td></td>
</tr>
<tr>
<td>H(_2)O</td>
<td>[12.3]</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>92.82</td>
<td></td>
</tr>
</tbody>
</table>

(1) Griffiths Find gold deposit, Western Australia; average of 11 electron microprobe analyses, H\(_2\)O calculated from structure; corresponds to Na\(_{1.09}\)K\(_{0.07}\)Ca\(_{0.30}\)Fe\(_{3+}2.37\text{W}^{6+}0.70\text{As}^{3+}2.10\text{P}_2\text{O}_5\text{H}_2\text{O}.

**Mineral Group:** Walentaite group, Walentaite subgroup.

**Occurrence:** On fracture surfaces in iron-stained heavily weathered rock as a product of supergene alteration of primary sulfide and arsenide minerals.

**Association:** Natropharmacosiderite, jarosite.

**Distribution:** From the Griffiths Find gold deposit, ~15 km northwest of Lake Grace and 275 km southeast of Perth, Western Australia.

**Name:** The prefix, natro, indicates dominant sodium replacing calcium in walentaite.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (66703).

**References:**