**Tungstite**

**WO$_3$·H$_2$O**

**Crystal Data:** Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As platy crystals with rhombic outline, to 75 $\mu$m, in radiating aggregates; commonly earthy to pulverulent, massive.

**Physical Properties:**
- **Cleavage:** {001}, perfect; {110}, imperfect. *Hardness = 2.5*
- D(meas.) = 5.517  D(calc.) = 5.78

**Optical Properties:**
- $\alpha = 2.09(2)$  $\beta = 2.24(2)$  $\gamma = 2.26(2)$  $2V(\text{meas.}) = 26^\circ–27^\circ$

**Cell Data:**
- **Space Group:** Pmnb.  $a = 5.249(2)$  $b = 10.711(5)$  $c = 5.133(2)$  $Z = 4$

**X-ray Powder Pattern:** Kootenay Belle mine, Canada.
- 3.463 (100), 5.36 (80), 2.556 (50), 1.731 (45), 2.616 (40), 1.851 (40), 1.634 (40)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO$_3$</td>
<td>86.20</td>
<td>91.30</td>
<td>92.79</td>
</tr>
<tr>
<td>SiO$_2$</td>
<td>0.96</td>
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<tr>
<td>Fe$_2$O$_3$</td>
<td>4.14</td>
<td>0.18</td>
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<tr>
<td>FeO</td>
<td>1.21</td>
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<tr>
<td>CaO</td>
<td>0.54</td>
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<tr>
<td>H$_2$O</td>
<td>7.72</td>
<td>7.46</td>
<td>7.21</td>
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<tr>
<td>Total</td>
<td>99.81</td>
<td>99.90</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Kootenay Belle mine, Canada.  (2) Calacalani mine, Bolivia.  (3) WO$_3$·H$_2$O.

**Occurrence:** An alteration product of tungsten minerals, especially wolframite and ferberite, in hydrothermal tungsten-bearing deposits.

**Association:** Hydrotungstite, ferritungstite, wolframite, ferberite, scheelite.

**Distribution:** In the USA, from Lane’s bismuth mine, Monroe, north of Trumbull, Fairfield Co., Connecticut; in the Boriana mine, Mohave Co., and the Black Pearl mine, Camp Wood district, Yavapai Co., Arizona. From the San Alberto mine, near Alamos, Sonora, Mexico. In Canada, in the Kootenay Belle mine, Salmo, British Columbia; at Marlow, Quebec; and elsewhere. At La Vilate, near Chanteloube, Haute-Vienne, France. From Panasqueira, Portugal. In the Calacalani mine, near Colquiri, the Juliani mine, Conde-Auqui district, Tazna, and the San Antonio mines, La Paz, Oruro, Bolivia. At Kingsgate, New South Wales, Australia. In the Kirwa mine, Ubale, Uganda. From Nzombe, Kivu Province, Congo (Zaire). Other localities have been reported but require modern confirmation.

**Name:** For TUNGSTen in the composition.

**References:**