Chromschieffelinite

\[ \text{Pb}_{10} \text{Te}_6 \text{O}_{20} (\text{OH})_{14} (\text{CrO}_4)(\text{H}_2\text{O})_5 \]

**Crystal Data:** Orthorhombic.  *Point Group:* 222. Crystals blocky to tabular on [010] with striations parallel to [001], to 0.2 mm. Forms {010}, {210}, {120}, {150}, {180}, {212}, and {101} observed.

**Physical Properties:** *Cleavage:* Perfect on {010}.  *Fracture:* Irregular.  *Tenacity:* Brittle.  
Hardness = 2  \( \text{D}(\text{meas.}) = \text{n.d.} \)  \( \text{D}(\text{calc.}) = 5.892 \)

**Optical Properties:**  
*Color:* Pale yellow.  *Streak:* Pale yellow.  
*Luster:* Adamantine.  
*Optical Class:* Biaxial (-).  
\( \alpha = 1.930(5) \)  \( \beta = 1.960(5) \)  \( \gamma = 1.975(5) \)  \( 2\text{V}(\text{meas.}) = 68(2)^\circ \)  \( 2\text{V}(\text{calc.}) = 69.6^\circ \)  
*Orientation:* \( X = b, Y = c, Z = a \).  
*Dispersion:* Strong, \( r < v \).

**Cell Data:** *Space Group:* \( \text{C}_{222} \).  
\( a = 9.6646(3) \)  \( b = 19.4962(8) \)  \( c = 10.5101(7) \)  \( Z = 2 \)

**X-ray Powder Pattern:** Bird Nest drift, Otto Mountain, near Baker, California, USA.  
9.814 (100), 2.9455 (55), 3.262 (53), 3.052 (45), 3.347 (44), 3.575 (41), 2.0396 (33)

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PbO</td>
<td>59.42</td>
<td>61.97</td>
</tr>
<tr>
<td>TeO_3</td>
<td>29.08</td>
<td>29.25</td>
</tr>
<tr>
<td>CrO_3</td>
<td>1.86</td>
<td>2.78</td>
</tr>
<tr>
<td>H_2O</td>
<td>[6.63]</td>
<td>6.00</td>
</tr>
<tr>
<td>Total</td>
<td>96.99</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Bird Nest drift, Otto Mountain, near Baker, California, USA; average of 4 electron microprobe analyses, H_2O calculated, low analytical total ascribed to beam damage; corresponding to \( \text{Pb}_{9.65} \text{Te}_6 \text{O}_{19.96}(\text{OH})_{14.04}(\text{CrO}_4)_{0.67}(\text{H}_2\text{O})_{6.32} \).  
(2) \( \text{Pb}_{10} \text{Te}_6 \text{O}_{20}(\text{OH})_{14}(\text{CrO}_4)(\text{H}_2\text{O})_5 \).

**Occurrence:** A secondary mineral in the oxidized zone of a telluride and galena deposit.

**Association:** Chalcopyrite, chrysocolla, galena, goethite, hematite, khinite, pyrite, wulfenite.

**Distribution:** From the Bird Nest drift, southwest flank of Otto Mountain, 0.4 miles northwest of the Aga mine, near Baker, California, USA.

**Name:** As the chromate analog of schieffelinite.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (63511).

**References:**