Threadgoldite

\( \text{Al(UO}_2\text{)}_2(\text{PO}_4\text{)}_2(\text{OH})\cdot8\text{H}_2\text{O} \)

Crystal Data:  Monoclinic.  Point Group: 2/m or m. Tabular micaceous crystals, elongated along [010], showing \{100\}, \{001\}, \{010\}, \{012\}, to 1 mm.

Physical Properties:  Cleavage: On \{100\}, micaceous; also on \{001\}, \{010\}, \{012\}. Hardness = n.d.  D(meas.) = 3.4  D(calc.) = 3.33  Radioactive; fluoresces green under LW UV, pale green under SW UV.


Optical Class:  Biaxial (−).  Orientation:  \( Y = b, Z \wedge c = 4° \). \( \alpha = [1.573] \quad \beta = 1.583 \quad \gamma = 1.588 \)

2V(meas.) = 70°

Cell Data:  Space Group: C2/m or Cc.  \( a = 20.168(8) \quad b = 9.847(2) \quad c = 19.719(4) \)

\( \beta = 110.71(2)^° \quad Z = 8 \)

X-ray Powder Pattern:  Kobokobo pegmatite, Congo. 9.43 (100), 3.474 (80), 3.366 (60), 2.197 (60), 5.35 (50), 4.10 (50), 4.93 (40b)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UO₃</td>
<td>63.5</td>
<td>62.31</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>13.7</td>
<td>15.46</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>5.4</td>
<td>5.55</td>
</tr>
<tr>
<td>H₂O</td>
<td>17.0</td>
<td>16.68</td>
</tr>
<tr>
<td>Total</td>
<td>99.6</td>
<td>100.00</td>
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</table>

(1) Kobokobo pegmatite, Congo; by electron microprobe, H₂O by TGA on a separate sample; corresponding to Al₀.₉₈(UO₂)₂(PO₄)₁.₇₈(OH)·8H₂O. (2) Al(UO₂)₂(PO₄)₂(OH)·8H₂O.

Occurrence:  A rare secondary mineral in the uraniferous zone of a complex zoned granite pegmatite.

Association:  Meta-autunite, phosphuranylite, phuralumite, bolivarite, upalite, eylettersite, mUndite.

Distribution:  Found in the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire). From the South Alligator Valley, Northern Territories, Australia.

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