**Metauranocircite I**

**Ba(UO$_2$)$_2$(PO$_4$)$_2$·6H$_2$O**

**Crystal Data:** Monoclinic. *Point Group*: 2. As rectangular tabular crystals flattened on {001} and modified by {100} and {011}, to 2 cm; in subparallel growths and fanlike aggregates. **Twinning:** Lamellar twinning || {100} and {010} observed optically.

**Physical Properties:** **Cleavage:** Perfect on {001}; distinct on {010}. **Tenacity:** Thin plates are flexible. **Hardness** = 2-2.5 D(meas.) = 3.94 D(calc.) = 3.78 **Radioactive.** Fluorescent green under SW and LW UV.

**Optical Properties:** Transparent to translucent. **Color:** Yellow, yellow-green. **Luster:** Waxy, pearly on {001}. **Optical Class:** Biaxial (-). $\alpha = 1.610$ $\beta = 1.621-1.623$ $\gamma = 1.622-1.623$ 2V(meas.) = 0°-45° **Pleochroism:** $X =$ colorless; $Y = Z =$ pale canary yellow. **Orientation:** X = c. **Dispersion:** r > v.

**Cell Data:** *Space Group*: P2$_1$. $a = 6.965(3)$ $b = 6.964(2)$ $c = 17.65(1)$ $\beta = 90^\circ$ $Z = 2$

**X-ray Powder Pattern:** Streuberg, Bergen, Germany. (ICDD 36-407).

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
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</thead>
<tbody>
<tr>
<td>UO$_3$</td>
<td>56.86</td>
<td>58.65</td>
</tr>
<tr>
<td>P$_2$O$_5$</td>
<td>15.06</td>
<td>14.55</td>
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<tr>
<td>BaO</td>
<td>14.57</td>
<td>15.72</td>
</tr>
<tr>
<td>H$_2$O</td>
<td>13.99</td>
<td>11.08</td>
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<tr>
<td>Total</td>
<td>100.48</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) The Falkenstein, Germany. (2) Ba(UO$_2$)$_2$(PO$_4$)$_2$·6H$_2$O.

**Mineral Group:** Autunite group.

**Occurrence:** Typically, a secondary mineral in the oxidized zone of some uranium deposits; may be primary in low-temperature veins.

**Association:** Autunite, torbernite.

**Distribution:** In Germany, from Bergen, near the Falkenstein, Vogtland, and from Schwarzenberg and Aue, Saxony; at Wölsendorf, Bavaria; and from Menzenschwand, Black Forest. A uranium ore at Cayrou, Entraygues, Aveyron, France. At the Bota-Burum uraninite-sulfide deposit, Kazakhstan. From Vinninkarena, near Antsirabe, Madagascar. At the Mounana mine, Franceville, Gabon. In the USA, in the Honeycomb Hills, Juab Co., Utah; the Wind River Basin, Fremont Co., Wyoming; and from Annie Creek, Lawrence Co., South Dakota; found near Cameron, Coconino Co., Arizona.

**Name:** The prefix *meta* indicates the dehydration product of *uranocircite*, named for its content of *uranium*, and from the Greek for *falcon*, for its occurrence at the Falkenstein, Germany.

**Type Material:** State Museum for Mineralogy and Geology, Dresden; Mining Academy, Freiberg, Germany.

**References:**