**Metauranocircite**  
\[ \text{Ba(}\text{UO}_2\text{)}_2(\text{PO}_4)_2\cdot8\text{H}_2\text{O} \]

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**Crystal Data:** Tetragonal.  
**Point Group:** 4/m.  
As rectangular tabular crystals flattened on \{001\}, and modified by \{100\} and \{101\}, to 2 cm; in subparallel growths and fanlike aggregates.  
**Twinning:** Lamellar twinning \parallel \{100\} and \{010\} observed optically.

**Physical Properties:**  
**Cleavage:** Perfect on \{001\}; distinct on \{010\}.  
**Tenacity:** Thin plates are flexible.  
**Hardness:** = 2–2.5  
\( D(\text{meas.}) = 3.94 \quad D(\text{calc.}) = 3.95 \)  
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 (−).  
**Pleochroism:** \( X = \text{colorless}; \ Y = Z = \text{pale canary yellow.} \)

**Orientation:** \( X = c \).

**Dispersion:** \( r > v \).  
\( \alpha = 1.610 \quad \beta = 1.621–1.623 \quad \gamma = 1.622–1.623 \)

\( 2V(\text{meas.}) = 0^\circ–45^\circ \)

**Cell Data:**  
**Space Group:** \( P4_2/n. \)

\( a = 6.9526(5) \quad c = 17.6342(9) \quad Z = 2 \)

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

8.82 (100), 4.410 (55), 3.723 (50), 2.708 (20), 2.205 (18), 1.4621 (18), 1.4621 (18), 5.46 (15)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{UO}_3</td>
<td>56.86</td>
<td>56.56</td>
</tr>
<tr>
<td>\text{P}_2\text{O}_5</td>
<td>15.06</td>
<td>14.03</td>
</tr>
<tr>
<td>\text{BaO}</td>
<td>14.57</td>
<td>15.16</td>
</tr>
<tr>
<td>\text{H}_2\text{O}</td>
<td>13.99</td>
<td>14.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.48</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) The Falkenstein, Germany.  
(2) \( \text{Ba(}\text{UO}_2\text{)}_2(\text{PO}_4)_2\cdot8\text{H}_2\text{O}. \)

**Mineral Group:** Meta-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 Menzenschwarz, Black Forest. A uranium ore at Cayrou, Entraygues, Aveyron, France. From Vinaninkarena, 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 \textit{meta} indicates the dehydration product of \textit{uranocircite}, named for its content of uranium, and from the Greek for \textit{falcon}, for its occurrence at the Falkenstein, Germany.

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

**References:**  

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