Arsenovanmeersscheite  

**U(UO$_2$)$_3$(AsO$_4$)$_2$(OH)$_6$·4H$_2$O**

**Crystal Data:** Orthorhombic. **Point Group:** mm2. As crusts of lath-like crystals elongated along [001] and flattened on (010) to 0.1 mm, showing (100), (010) and (001).

**Physical Properties:** **Cleavage:** Good on (010) and (001). **Tenacity:** Brittle. **Fracture:** Irregular. **Hardness:** ~2  D(meas.) = n.d.  D(calc.) = 4.91  Nonfluorescent. Soluble in dilute HCl.

**Optical Properties:** Transparent. **Color:** Yellow. **Streak:** Yellowish. **Luster:** Vitreous. **Optical Class:** Biaxial (-).  $\alpha = 1.725(3)$  $\beta = 1.742(3)$  $\gamma = 1.745(3)$  $2V(\text{calc.}) = 46^\circ$

**Orientation:** $X = b$, $Y = a$, $Z = c$.

**Cell Data:** **Space Group:** P2$_1$2$_1$2$_1$.  $a = 17.36(2)$  $b = 16.96(2)$  $c = 7.02(1)$  $Z = 4$

**X-Ray Diffraction Pattern:** Menzenschwand, Baden-Württemberg, Germany. 8.56 (10), 12.21 (8), 6.07 (8), 4.25 (8), 5.42 (7), 3.33 (7), 3.11 (6)

**Chemistry:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaO</td>
<td>1.69</td>
</tr>
<tr>
<td>CaO</td>
<td>0.54</td>
</tr>
<tr>
<td>UO$_3$</td>
<td>78.18</td>
</tr>
<tr>
<td>As$_2$O$_5$</td>
<td>8.46</td>
</tr>
<tr>
<td>P$_2$O$_5$</td>
<td>3.52</td>
</tr>
<tr>
<td>H$_2$O</td>
<td>[7.61]</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Menzenschwand, Baden-Württemberg, Germany; average electron microprobe analysis, H$_2$O by difference; corresponds to Ba$_{0.17}$Ca$_{0.15}$U$_{4.18}$As$_{1.12}$P$_{0.75}$H$_{12.91}$O$_{24}$.

**Occurrence:** A secondary mineral in a uranium deposit.

**Association:** Vanmeerschelte, schoepite, pyrite, quartz.

**Distribution:** From Menzenschwand, southern Black Forest, Baden-Württemberg, Germany.

**Name:** Prefix, *arseno*, indicates the arsenate analogue of *vanmeerscheite*.

**Type Material:** State Museum of Natural History, Stuttgart, Germany.