Arsenuranospathite $HAl(UO_2)_4(AsO_4)_4 \cdot 40H_2O$

Crystal Data: Orthorhombic, pseudotetragonal. *Point Group:* n.d. As crusts of wedgelike bladed or acicular crystals, to 0.3 mm, exhibiting {100}, {010}, {001}, and rarely {110}.

Physical Properties: *Cleavage:* Perfect on {001}; good on {100} and {010}. Hardness = ∼2 D(meas.) = n.d. D(calc.) = 2.54 Weak greenish fluorescence under SW UV. Radioactive. Dehydrates readily in air.

Optical Properties: Transparent to translucent. *Color:* Pale yellow, yellowish brown. *Streak:* White.
Optical Class: Biaxial (–). *Orientation:* $X = c$; Z = elongation; length positive.
Dispersion: $r > v$. $\alpha = \ll 1.538$ $\beta = \simeq 1.538$ $\gamma = 1.542(3)$ $2V(meas.) = \sim 52°$

Cell Data: *Space Group:* $P4_2/n$ (pseudocell). $a = 7.16$ $c = 30.37$ Z = 2

X-ray Powder Pattern: Menzenschwand, Germany.
14.62 (10), 7.62 (10), 3.49 (9), 5.03 (8), 3.59 (5), 3.24 (4), 2.25 (3)

Chemistry: (1) Menzenschwand, Germany; Al, As, and U confirmed by microchemical and spectrochemical techniques, formula established by analogy to uranospathite and similarity of X-ray pattern to synthetic material.

Occurrence: A very rare secondary mineral in uranium deposits.

Association: Zeunerite, uranophane, studtite, uranospinite, ianthinite, metakirchheimerite, "uranocircite"–heinrichite, barite, "limonite".

Distribution: In Germany, in the Black Forest, at Menzenschwand and on the dump of the Sophia mine, near Wittichen. From the Rabéjac uranium deposit, seven km south-southeast of Lodève, Hérault, France.

Name: As the *arsenate* analog of *uranospathite*.

Type Material: n.d.

References: (1) Walenta, K. (1978) Uranospathite and arsenuranospathite. Mineral. Mag., 42, 117–128. (2) (1979) Amer. Mineral., 64, 465 (abs. ref. 1).