

Nielsbohrite**K(UO₂)₃(AsO₄)(OH)₄·H₂O**

Crystal Data: Orthorhombic. *Point Group:* *mm*2. Crystals, rhombohedron-like, showing forms {001}, {100} or {010}, {210} or {120}, to 0.15 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = ~2 D(meas.) = n.d. D(calc.) = 5.45 (structure); 5.65 (chemical data)

Optical Properties: Transparent. *Color:* Yellow. *Streak:* Yellow. *Luster:* Vitreous to dull. *Optical Class:* Biaxial (-). $\alpha = 1.756(2)$ $\beta = 1.764(2)$ $\gamma = 1.765(2)$ $2V(\text{meas.}) = 35(5)^\circ$ $2V(\text{calc.}) = 39^\circ$ *Orientation:* $Y = c$. *Dispersion:* $r > v$, strong. Anomalous blue-green and reddish brown interference colors.

Cell Data: *Space Group:* *Cccm*. $a = 8.193(3)$ $b = 11.430(4)$ $c = 13.500(5)$ $Z = 4$

X-ray Powder Pattern: Menzenschwand, Baden-Württemberg, Germany. 6.03 (100), 6.71 (80), 3.33 (80), 3.78 (70), 2.96 (60), 2.63 (50), 1.942 (50)

| Chemistry: | (1) | (2) |
|--------------------------------|--------|--------|
| K ₂ O | 1.90 | 4.38 |
| UO ₃ | 83.34 | 79.89 |
| As ₂ O ₅ | 10.64 | 10.70 |
| H ₂ O | 5.07 | 5.03 |
| Total | 100.95 | 100.00 |

(1) Menzenschwand, Baden-Württemberg, Germany; average of 2 electron microprobe analyses, H₂O calculated from structure analysis, anionic groups confirmed by IR, corresponding to (K_{0.430}□_{0.570})(AsO₄)_{0.987}(UO₂)_{3.106}(OH)₄·1.00H₂O. (2) K(UO₂)₃(AsO₄)(OH)₄·H₂O.

Occurrence: A secondary mineral formed near oxidizing uraninite.

Association: Hematite, pyrite, schoepite, metazeunerite.

Distribution: From mine dumps near the village of Menzenschwand, Krunkelbach valley, southern Black Forest, Baden-Württemberg, Germany.

Name: Honors Niels Hendrik David Bohr (1885-1962), Danish physicist.

Type Material: Staatliches Museum für Naturkunde, Stuttgart, Germany; Laboratory of Mineralogy, University of Liège, Belgium (no. 20355).

References: (1) Walenta, K., F. Hatert, T. Theye, F. Lissner, and K. Röller (2009) Nielsbohrite, a new potassium uranyl arsenate from the uranium deposit of Menzenschwand, southern Black Forest, Germany. *Eur. J. Mineral.*, 21, 515–520. (2) (2009) *Amer. Mineral.*, 94, 1499 (abs. ref. 1).