

Asselbornite**(Pb, Ba)(UO₂)₆(BiO)₄(AsO₄)₂(OH)₁₂•3H₂O**

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Crystal Data: Cubic. *Point Group:* $4/m\bar{3}2/m$, 432, $2/m\bar{3}$ or 23. Crystals are cubes modified by tetrahedra or pseudotetrahedra, to 0.3 mm.

Physical Properties: Hardness = n.d. $D(\text{meas.}) = \text{n.d.}$ $D(\text{calc.}) = 5.6$ Radioactive.

Optical Properties: Translucent. *Color:* Brown to lemon-yellow; yellow in transmitted light. *Luster:* Greasy to adamantine.

Optical Class: Isotropic. $n = \sim 1.9$

Cell Data: *Space Group:* $Im\bar{3}m$, $I432$, $Im\bar{3}$ or $I23$. $a = 15.66$ $Z = 4$

X-ray Powder Pattern: Schneeberg, Germany.

4.185 (100), 3.196 (80), 4.520 (70), 3.691 (60), 5.536 (40), 2.609 (40), 3.501 (35)

Chemistry:

	(1)	(2)
UO ₃	56.00	57.77
P ₂ O ₅	1.11	1.36
As ₂ O ₅	6.42	6.23
Bi ₂ O ₃	33.27	32.55
PbO	5.88	3.61
BaO	1.84	2.29
Total	104.52	103.81

(1) Schneeberg, Germany; by electron microprobe, average of eight analyses of the central part of a crystal; H₂O 5.6% by TGA, the loss of which is assumed to account for the high total; corresponds to (Pb_{0.77}Ba_{0.35})_{Σ=1.12}(UO₂)_{5.78}(BiO)_{4.18}[(AsO₄)_{1.63}(PO₄)_{0.46}]_{Σ=2.09}(OH)₁₂•3H₂O.

(2) Do.; by electron microprobe, average of eight analyses of the exterior part of a crystal; corresponds to (Pb_{0.48}Ba_{0.45})_{Σ=0.93}(UO₂)_{5.87}(BiO)_{4.07}[(AsO₄)_{1.57}(PO₄)_{0.57}]_{Σ=2.14}(OH)₁₂•3H₂O.

Occurrence: On a museum specimen initially, later at the locality.

Association: Uranospinite, uranophane, uranosphaerite, quartz.

Distribution: In the Walpurgis vein, Weisser Hirsch mine, Neustädtel-Schneeberg, Saxony, Germany.

Name: For Eric Asselborn (1954–), surgeon and mineral collector, of Dijon, France, in whose collection the mineral was first found.

Type Material: Museum of Natural History, Geneva, Switzerland, 435/50; National Museum of Natural History, Washington, D.C., USA, 142229.

References: (1) Sarp. H., J. Bertrand, and J. Deferne (1983) Asselbornite, (Pb, Ba)(UO₂)₆(BiO)₄[(As, P)O₄]₂(OH)₁₂•3H₂O, a new uranium, lead and barium hydrous arsenate. *Neues Jahrb. Mineral., Monatsh.*, 417–423. (2) (1984) *Amer. Mineral.*, 69, 565 (abs. ref. 1).