## Uranosphaerite $Bi_2U_2O_9 \cdot 3H_2O$



**Crystal Data:** Orthorhombic (probable). *Point Group:* n.d. In concentric, radiated to spherulitic aggregates, to 0.5 mm, of tiny crystals elongated ‖ [001].

**Physical Properties:** *Cleavage:* {100}. Hardness = 2–3 D(meas.) = 6.36; 6.89 D(calc.) = n.d. Radioactive.

**Optical Properties:** Semitransparent. *Color:* Yellow-orange, golden to reddish orange, brick-red. *Streak:* Yellow. *Luster:* Greasy.
*Optical Class:* Biaxial (+). *Orientation:* $X = a$; $Y = b$; $Z = c$. *Dispersion:* $r < v$, strong.
$\alpha = 1.955$–$1.959$ $\beta = 1.981$–$1.985$ $\gamma = 2.05$–$2.060$ 2V(meas.) = Large. 2V(calc.) = 56°

**Cell Data:** *Space Group:* n.d. Z = n.d.

**X-ray Powder Pattern:** Schneeberg, Germany.
3.16 (10), 1.83 (8), 3.87 (7), 5.25 (6), 3.47 (6), 1.90 (5), 4.37 (4)

**Chemistry:**

| | (1) | (2) | (3) |
|---|---|---|---|
| $UO_3$ | 50.88 | 52.62 | 52.38 |
| $Bi_2O_3$ | 44.34 | 43.46 | 42.67 |
| $H_2O$ | 4.75 | 3.59 | 4.95 |
| Total | 99.97 | 99.67 | 100.00 |

(1–2) Schneeberg, Germany. (3) $Bi_2U_2O_9 \cdot 3H_2O$.

**Occurrence:** An oxidation product of uraninite in a Co–Ni–Bi-bearing hydrothermal vein (Schneeberg, Germany).

**Association:** Walpurgite, uranospinite, uranospathite, asselbornite, trögerite, zeunerite, erythrite, cobaltian wad (Schneeberg, Germany); uraninite, wölsendorfite, renardite (Kersegalec, France).

**Distribution:** From the Walpurgis vein, Weisser Hirsch mine, Neustädtl, near Schneeberg, Saxony, Germany. At Kersegalec, near Lignol, Morbihan, France.

**Name:** For URANium in the composition, and the Greek for *sphere*, for the typical habit.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 631. (2) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 98–99. (3) Protas, J. (1959) Contribution à l'étude des oxydes d'uranium hydratés. Bull. Soc. fr. Minéral., 82, 239–272, esp. 265–268.