Uranospinite $Ca(UO_2)_2(AsO_4)_2•10H_2O$

Crystal Data: Orthorhombic. *Point Group*: 2/*m* 2/*m* 2/*m*. Rare as thin tabular crystals, flattened on {001}, to 1 mm; in aggregates and crusts.

Physical Properties: *Cleavage*: Perfect on {001}; distinct on {100}. Hardness = 2-3
D(meas.) = 3.45 D(calc.) = 3.30 Radioactive; bright lemon-yellow fluorescence under UV.

Optical Properties: Semitransparent. *Color*: Lemon-yellow to siskin-green. *Luster*: Waxy, pearly on {001}.
Optical Class: Uniaxial (-), commonly anomalously biaxial (-), may be zoned. ω = 1.572-1.587 ε = 1.55-1.560 For biaxial material: α = 1.55 β = 1.567-1.582 γ = 1.572-1.587 2V(meas.) = 0°-62° *Pleochroism*: *O* = *Y* = *Z* = pale yellow; *E* = *X* = nearly colorless. *Orientation*: *X* = *c* in biaxial material. *Dispersion*: *r* > *v*, moderate.

Cell Data: *Space Group*: *Pnma*. [By analogy to autunite.] *a* = 14.35 *b* = 20.66 *c* = 7.17 Z = 4

X-ray Powder Pattern: Synthetic.
10.16 (10), 3.56 (9), 3.39 (8), 5.13 (7), 4.90 (6), 1.90 (6), 2.52 (5b)

Chemistry:

	(1)	(2)
UO_3	59.18	55.11
As_2O_5	19.37	22.14
CaO	5.47	5.40
H_2O	16.19	17.35
Total	100.21	100.00

(1) Weisser Hirsch mine, Germany. (2) $Ca(UO_2)_2(AsO_4)_2·10H_2O$.

Mineral Group: Autunite group.

Occurrence: A secondary mineral in the oxide zone of U-As-bearing hydrothermal mineral deposits.

Association: Metazeunerite, metauranocircite, uranophane, trögerite, walpurgite, uranosphaerite, asselbornite (Weisser Hirsch mine, Germany); schoepite, paraschoepite, arsenuranylite, metazeunerite, nováčekite (Cherkasar deposit, Uzbekistan).

Distribution: In Germany, from the Walpurgis vein, Weisser Hirsch mine, NeustädtelSchneeberg, Saxony; in the Black Forest, from the Clara mine, near Oberwolfach, the Sophia mine, near Wittichen, at the Gottesehre mine, near Urberg, and from Menzenschwand; from the Bühlskopf, near Ellweiler, Rhineland-Palatinate. In the Rabéjac uranium deposit, seven km south-southeast of Lodève, Hérault, France. At Tyndrum, Perthshire, Scotland. From the Cherkasar uranium deposit, 30 km northwest of Pap, Chaktal Mountains, Uzbekistan. In the Talmessi mine, 35 km west of Anarak, Iran. From near Myponga, Fleurieu Peninsula, and at the Radium Hill mine, Mt. Painter, Flinders Ranges, South Australia. In the USA, on the Clyde Long property, Elk Park, San Juan Co., Colorado; in Utah, from near Spanish Fork, Utah Co., and at Paria, Kane Co.; at the Orphan mine, Coconino Co., Arizona.

Name: A prefix for its uranium content and from the Greek for *siskin*, in allusion to its typical color.

Type Material: State Museum for Mineralogy and Geology, Dresden; Mining Academy, Freiberg, Germany, 21722.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 990-991. (2) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 183-187. (3) Locock, A.J., P.C. Burns, and T.M. Flynn (2005) Structures of strontium- and barium-dominant compounds that contain the autunite-type sheet. Can. Mineral., 43, 721-733. (4) (2005) Amer. Mineral., 90(11), 1951 (abs. ref. 3).