Bergenite $Ca_2Ba_4(UO_2)_9O_6(PO_4)_6 \cdot 16H_2O$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As thin tabular to needlelike crystals, to 3 mm.

Physical Properties: Hardness = n.d. D(meas.) = ~4.1 D(calc.) = 4.82 Radioactive. Pale green fluorescence under SW UV.

Optical Properties: Semitransparent. *Color*: Yellow to greenish yellow. *Streak*: Pale yellow. *Optical Class*: Biaxial (–). α = 1.660 β = n.d. γ = 1.722 2V(meas.) = 60°

Cell Data: *Space Group*: $P2_1/c$. a = 10.092(1) b = 17.245(2) c = 17.355(2) β = 113.678(2)° Z = 2

X-ray Powder Pattern: Streuberg, Germany.
7.73 (100), 3.837 (80), 3.054 (60), 2.874 (50), 2.826 (50), 8.54 (40), 3.742 (40)

Chemistry:

	(1)	(2)
UO_3	62.54	62.4
P_2O_5	10.98	11.4
CaO	2.44	2.5
BaO	13.98	13.2
H_2O	[10.06]	[10.5]
Total	[100.00]	[100.0]

(1) Streuberg, Germany; by electron microprobe, average of five analyses, H_2O by difference; corresponds to $Ca_2(Ba_{3.69}Ca_{0.31})(UO_2)_3O_2(PO_4)_2]_3 \cdot 16H_2O$, based on structure analysis. (2) Do.; by electron microprobe, H_2O by difference.

Mineral Group: Phosphuranylite group.

Occurrence: On a mine dump (Streuberg, Germany) and in uranium deposits (Black Forest, Germany). In graphitic uranium ore (Korea).

Association: "Uranocircite", torbernite, autunite, dewindtite, barian uranophane (Streuberg, Germany).

Distribution: In Germany, from the Streuberg, near Bergen, Saxony, and at Menzenschwand, Black Forest. In the Black Slate Formation, Republic of South Korea.

Name: For the first-noted occurrence of the mineral near *Bergen*, Germany.

Type Material: n.d.

References: (1) Bültemann, H.W. and G.H. Moh (1959) Bergenit, ein neues Mineral der Phosphuranylit-Gruppe. Neues Jahrb. Mineral., Monatsh., 232-233 (in German). (2) (1960) Amer. Mineral., 45, 909 (abs. ref. 1). (3) Piret, P. and M. Deliens (1981) Nouvelles données sur la bergenite holotype. Bull. Minéral., 104, 16-18 (in French with English abs.). (4) Locock, A.J. and P.C. Burns (2003) The crystal structure of bergenite, a new geometrical isomer of the phosphuranylite group. Can. Mineral., 41, 91-101. (5) (2004) Amer. Mineral., 89(1), 251 (abs. ref. 4). (6) Lee, D.J., K.N. Sang, and S.R. Lee (1982) Mineralogy of graphitic uranium ore in the Black Slate Formation of the Ogcheon Group [Korea]. Chosa Yongu Pogo - Chawon Kaepal Yonguso 13, 167-181 (in Korean).