

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals display {100}, {101}, {201̄}, {310}, {210}, {120}, and {010}. As striated, prismatic, bladed crystals with pyramidal terminations to 1 mm, elongated along [001].

Physical Properties: *Cleavage:* Perfect on {010}. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 3-4 D(meas.) = n.d. D(calc.) = 5.437

Optical Properties: Transparent. *Color:* Yellowish orange. *Streak:* Light orange. *Luster:* Vitreous.

Optical Class: Biaxial (-). $\alpha = 1.780(5)$ $\beta = 1.815(5)$ $\gamma = 1.825(5)$ $2V(\text{meas.}) = 58(1)^\circ$ $2V(\text{calc.}) = 55.4^\circ$ *Orientation:* $X = b$, $Y \approx a^*$, $Z \approx c$ (or $X = b$, $Y \wedge a = 14^\circ$ in obtuse β). *Dispersion:* Extreme, $r \gg v$. *Pleochroism:* $X =$ very pale yellow, $Y = Z =$ orange-yellow. *Absorption:* $X \ll Y \approx Z$.

Cell Data: *Space Group:* $P2_1/c$. $a = 29.844(2)$ $b = 14.5368(8)$ $c = 14.0406(7)$ $\beta = 103.708(6)^\circ$ $Z = 8$

X-ray Powder Pattern: Shinkolobwe Mine, Democratic Republic of Congo, Africa. 3.192 (100), 3.566 (67), 7.28 (49), 2.001 (23), 2.541 (18), 1.783 (17), 2.043 (14)

Chemistry:	(1)	(2)
K ₂ O	1.29	1.90
PbO	7.17	9.00
UO ₃	82.10	80.74
H ₂ O	[8.78]	8.35
Total	99.34	100.00

(1) Shinkolobwe Mine, Democratic Republic of Congo, Africa; average of 9 electron microprobe analyses supplemented by FTIR and Raman spectroscopy, H₂O from structure analysis; corresponds to K_{0.67}Pb_{0.78}U₇O₃₄H_{23.77}. (2) K₂Pb[(UO₂)₇O₅(OH)₇]·8H₂O.

Occurrence: A product of the oxidation-hydration weathering of uraninite and presumably formed by the combination of radiogenic lead and uranium from altered uraninite with potassium leached from gangue minerals.

Association: Uraninite, quartz, soddyite, a metazeunerite-metatorbernite series mineral.

Distribution: Found at the Shinkolobwe Mine, Democratic Republic of Congo, Africa.

Name: Honors Gilbert Joseph Gauthier (1924-2006), a Belgian geologist, mineralogist and connoisseur of Katanga minerals. He found the mineral and provided it for study.

Type Material: Natural History Museum of Los Angeles County, Los Angeles, California, USA (65644).

References: (1) Olds, T.A., J. Plášil, A.R. Kampf, R. Škoda, P.C. Burns, J. Čejka, V. Bourgoïn, and J.-C. Boulliard (2017) Gauthierite, K₂Pb[(UO₂)₇O₅(OH)₇]·8H₂O, a new uranyl-oxide hydroxy-hydrate mineral from Shinkolobwe with a novel uranyl-anion sheet-topology. *Eur. J. Mineral.*, 29, 129-141. (2) (2018) *Amer. Mineral.*, 103, 2526 (abs. ref. 1).