

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . Crystals, flattened on {001}, may be lathlike, rounded, to 0.5 cm; in parallel aggregates, lamellar, scaly; massive.

**Physical Properties:** *Cleavage:* {110}, perfect; two others, in the [001] zone, indistinct. Hardness = 4 D(meas.) = 4.91–5.03 D(calc.) = [5.14] Radioactive.

**Optical Properties:** Translucent, transparent in thin fragments. *Color:* Dark green to nearly black; green in transmitted light. *Streak:* Green. *Luster:* Vitreous. *Optical Class:* Biaxial, (+) or (–). *Pleochroism:* Yellow-green to blue-green. *Orientation:*  $Z \wedge$  elongation  $\simeq 40^\circ$ . *Dispersion:* Strong.  $\alpha = 1.76\text{--}1.77$   $\beta = 1.78\text{--}1.79$   $\gamma = 1.78\text{--}1.82$   $2V(\text{meas.}) = \sim 90^\circ$

**Cell Data:** *Space Group:*  $P\bar{1}$  (probable).  $a = 7.855(5)$   $b = 5.449(4)$   $c = 6.089(4)$   $\alpha = 91.44(5)^\circ$   $\beta = 101.90(5)^\circ$   $\gamma = 89.2(5)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Kalongwe, Congo.  
4.29 (10), 2.92 (8), 5.06 (4), 2.56 (4), 2.09 (3), 1.85 (3), 1.47 (3)

Chemistry:	(1)	(2)
UO <sub>3</sub>	71.23	71.22
CuO	19.20	19.81
H <sub>2</sub> O	9.57	8.97
Total	[100.00]	100.00

(1) Shinkolobwe, Congo; recalculated to 100% after deduction of SiO<sub>2</sub> 0.28%, MgO 0.57%, CaO 0.26% as impurities. (2) Cu(UO<sub>2</sub>)(OH)<sub>4</sub>.

**Occurrence:** A rare secondary mineral in the oxide zone of hydrothermal copper-bearing uranium deposits.

**Association:** Cuprosklodowskite, kasolite, sklodowskite, malachite, chalcocite, chalcopyrite, uraninite, goethite (Kalongwe, Congo); curite, uranophane, sharpite (Shinkolobwe, Congo).

**Distribution:** In Congo (Zaire), in Katanga (Shaba) Province, from the Luiswishi mine; at Kalongwe; from Shinkolobwe; at Kambove; from Swambo; and in the Musonoi mine, near Kolwezi. In the Rabéjac uranium deposit, seven km south-southeast of Lodève, Hérault, France.

**Name:** To honor Pierre Van den Brande (1896–1957), Belgian geologist, who discovered the uranium deposit at Kalongwe, Congo.

**Type Material:** Natural History Museum, Paris, France, 134-72; The Natural History Museum, London, England, 1933,261–263.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 632–633 [vandenbrandite]. (2) Milne, I.H. and E.W. Nuffield (1951) Studies of radioactive compounds: I – vandenbrandeite. *Amer. Mineral.*, 36, 394–410. (3) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. *U.S. Geol. Sur. Bull.* 1064, 100–103. (4) Rosenzweig, A. and R.R. Ryan (1977) Vandenbrandeite CuUO<sub>2</sub>(OH)<sub>4</sub>. *Crystal Structure Comm.*, 6, 53–56.