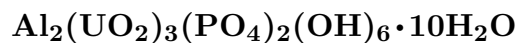


## Phuralumite



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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . As prismatic crystals, elongated along [001], flattened on [010], with {110},  $\{\bar{1}01\}$ , {001}, to 0.5 mm, in crystalline veinlets and crusts.

**Physical Properties:** *Cleavage:* On {010}, perfect. Hardness =  $\sim 3$  D(meas.) = 3.5 D(calc.) = 3.52 Radioactive.

**Optical Properties:** Semitransparent. *Color:* Lemon-yellow.

*Optical Class:* Biaxial (-). *Pleochroism:* X = bright yellow; Y = Z = pale yellow. *Orientation:* X = b; Y  $\wedge$  c =  $0^\circ$ - $8^\circ$ .  $\alpha = [1.559]$   $\beta = 1.616$   $\gamma = 1.624$  2V(meas.) =  $40^\circ$

**Cell Data:** *Space Group:*  $P2_1/a$ . a = 13.836(6) b = 20.918(6) c = 9.428(3)  
 $\beta = 112.44(3)^\circ$  Z = 4

**X-ray Powder Pattern:** Kobokobo pegmatite, Congo.

10.4 (100), 3.08 (80), 5.17 (70), 3.40 (50), 3.47 (40), 8.0 (20), 2.95 (20)

### Chemistry:

	(1)	(2)
UO <sub>3</sub>	65.9	64.22
P <sub>2</sub> O <sub>5</sub>	10.3	10.62
Al <sub>2</sub> O <sub>3</sub>	7.6	7.63
H <sub>2</sub> O	[16.2]	17.53
Total	[100.0]	100.00

(1) Kobokobo pegmatite, Congo; by electron microprobe, H<sub>2</sub>O by difference. (2) Al<sub>2</sub>(UO<sub>2</sub>)<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>•10H<sub>2</sub>O.

**Occurrence:** A rare secondary mineral in the oxidized uraniferous zone of a complex granite pegmatite.

**Association:** Meta-autunite, phosphuranylite, threadgoldite, upalite.

**Distribution:** From the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire).

**Name:** For PHosphorus, URanium, and ALUMinum in the composition.

**Type Material:** Royal Museum of Central Africa, Tervuren, Belgium, RMG6201, RMG6195, RMG6197, RMG9852.

**References:** (1) Deliens, M. and P. Piret (1979) Les phosphates d'uranyle et d'aluminium de Kobokobo. II. La phuralumite Al<sub>2</sub>(UO<sub>2</sub>)<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>6</sub>•10H<sub>2</sub>O et l'upalite Al(UO<sub>2</sub>)<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>(OH)<sub>3</sub>, nouveaux minéraux. Bull. Minéral., 102, 333-337 (in French with English abs.). (2) (1980) Amer. Mineral., 65, 208 (abs. ref. 1). (3) Piret, P., J. Piret-Meunier, and J.-P. Declercq (1979) Structure of phuralumite. Acta Cryst., 35, 1880-1882.