Kobokoboite $Al_6(PO_4)_4(OH)_6 \cdot 11H_2O$

Crystal Data: Triclinic. *Point Group*: 1 or $\bar{1}$. As crusts of hexagonal crystals, bladed to platy on (001), to 50 μm.

Physical Properties: *Cleavage*: None. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = 2 (estimated). D(meas.) = 2.21(3) D(calc.) = 2.287

Optical Properties: Translucent to transparent. *Color*: White. *Streak*: White. *Luster*: Pearly. *Optical Class:* Biaxial (-). α (calc.) = 1.556 β = 1.558(2) γ = 1.562(2) 2V (meas.) = 60-80° Orientation: $X \approx c$.

Cell Data: *Space Group*: $P1$ or $P\bar{1}$. a = 7.460(1) b = 7.737(1) c = 12.385(5) α = 102.79(2)° β = 90.20(3)° γ = 116.33(2)° Z = 1

X-ray Powder Pattern: Kobokobo pegmatite, Democratic Republic of the Congo. 11.990 (100), 6.868 (45), 3.552 (39), 6.006 (33), 3.081 (29), 3.714 (27), 3.028 (22)

Chemistry:

	(1)	(2)
Na_2O	0.06	
CaO	0.18	
Mn	0.01	
Fe_2O_3	1.31	
Al_2O_3	35.16	36.33
P_2O_5	33.25	33.71
H_2O	29.52	29.96
F	0.76	
-O=F	0.32	.
Total	99.93	100.00

(1) Kobokobo pegmatite, Democratic Republic of the Congo; average of 9 electron microprobe analyses, H_2O by CHN method, corresponding to $(Al_{5.85}Fe^{3+}_{0.14}Ca_{0.03}Na_{0.02})_{\Sigma=6.04}(PO_4)_{3.97}[(OH)_{5.80}F_{0.34}]_{\Sigma=6.14} \cdot 10.98H_2O$. (2) $Al_6(PO_4)_4(OH)_6 \cdot 11H_2O$.

Occurrence: A secondary mineral formed by weathering of the upper branch of a zoned albite-beryl-microcline pegmatite of the LCT family, rare-element class, Li subclass, beryl type, beryl–columbite/beryl–phosphate subtype.

Association: Frondelite, keckite, planerite, variscite, wavellite ("coeruleolactite"), muscovite-2M_2, evansite, apatite-(CaOH).

Distribution: Kobokobo pegmatite, South Kivu Province, Democratic Republic of the Congo.

Name: For the pegmatite body (*Kobokobo*) from which the first specimens were collected.

Type Material: Museum Victoria, Melbourne, Australia, (M49194).

References: (1) Mills, S.J., W.D. Birch, A.R. Kampf, and L. van Wambeke (2010) Kobokoboite, $Al_6(PO_4)_4(OH)_6 \cdot 11H_2O$, a new mineral from the Kobokobo pegmatite, Democratic Republic of the Congo. European Journal of Mineralogy, 22, 305-308. (2) (2014) Amer. Mineral., 99, 553-554 (abs. ref. 1).