

Meta-ankoleite



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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. As tabular crystals with square outline, to 1 mm; in scaly aggregates.

Physical Properties: *Cleavage:* Perfect on {001}; distinct on {010}. Hardness = n.d. D(meas.) = n.d. D(calc.) = 3.54(1) Radioactive; fluoresces yellow-green under SW and LW UV.

Optical Properties: Translucent. *Color:* Yellow. *Optical Class:* Uniaxial (-). *Pleochroism:* Faint; yellow. $\omega = 1.580\text{--}1.583$ $\epsilon = \text{n.d.}$

Cell Data: *Space Group:* $P4/nmm$. $a = 6.993(10)$ $c = 8.891(5)$ $Z = 1$

X-ray Powder Pattern: Mungenyi pegmatite, Uganda. 8.92 (100), 3.73 (65), 3.25 (55), 4.93 (50), 3.49 (50), 5.47 (45), 4.32 (40)

Chemistry:	(1)	(2)
UO ₃	60.8	62.43
P ₂ O ₅	15.5	15.49
BaO	3.2	
K ₂ O	8.7	10.28
H ₂ O	11.8	11.80
Total	100.0	100.00

(1) Mungenyi pegmatite, Uganda; recalculated to 100% after removal of albite and quartz impurities; corresponds to $(\text{K}_{1.71}\text{Ba}_{0.20})_{\Sigma=1.91}(\text{UO}_2)_{1.97}(\text{PO}_4)_{2.02} \cdot 6.06\text{H}_2\text{O}$.

(2) $\text{K}_2(\text{UO}_2)_2(\text{PO}_4)_2 \cdot 6\text{H}_2\text{O}$.

Mineral Group: Meta-autunite group.

Occurrence: A rare secondary mineral in the weathered zone of a complex granite pegmatite (Mungenyi pegmatite, Uganda) and the sericitic matrix of a quartz sandstone (Sebungwe district, Zimbabwe).

Association: Muscovite, albite, quartz, phosphuranylite, grayite, zircon (Mungenyi pegmatite, Uganda).

Distribution: From the Mungenyi pegmatite, about 65 km southwest of Mbarara, Ankole district, Uganda. In the Sebungwe district, Zimbabwe. From Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA. At St. Yrieux, near Limoges, Haute-Vienne, France.

Name: For the Ankole district, Uganda, from which it was first characterized.

Type Material: Geological Survey Museum; The Natural History Museum, London, England, 1966,203 and 1966,204.

References: (1) Gallagher, M.J. and D. Atkin (1966) Meta-ankoleite, hydrated potassium uranyl phosphate. Bull. Geol. Soc. Great Britain, 25, 49–54. (2) (1967) Amer. Mineral., 52, 560 (abs. ref. 1).