Vanmeersscheite $U(UO_2)_3(PO_4)_2(OH)_6 \cdot 4H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. As tabular crystals, flattened on {010} and elongated along [001], modified by {101}, $\{\bar{1}01\}$, {100}, to 0.4 mm; usually in divergent groups.

Physical Properties: *Cleavage:* Good on {010}; fair on {100}. Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.67 Fluoresces bright green in SW and LW UV. Radioactive.

Optical Properties: Semitransparent. *Color:* Canary-yellow.
Optical Class: Biaxial (–). *Pleochroism:* Weak; yellow to pale yellow. *Orientation:* $Y = c$.
$\alpha = [1.704]$ $\beta = 1.715(2)$ $\gamma = 1.718(2)$ 2V(meas.) = 56°

Cell Data: *Space Group:* $P2_1mn$. $a = 17.06$ $b = 16.76$ $c = 7.023$ Z = 4

X-ray Powder Pattern: Kobokobo pegmatite, Congo.
8.39 (100), 5.96 (80), 4.18 (70), 3.069 (70), 2.887 (70), 5.30 (50), 3.905 (50)

Chemistry:

	(1)	(2)
UO_3	80.76	81.02
P_2O_5	10.40	10.05
H_2O	[8.84]	8.93
Total	[100.00]	100.00

(1) Kobokobo pegmatite, Congo; average of five analyses, H_2O by difference; corresponds to $U(UO_2)_{2.96}(PO_4)_{2.06}(OH)_6 \cdot 3.87H_2O$. (2) $U(UO_2)_3(PO_4)_2(OH)_6 \cdot 4H_2O$.

Occurrence: A rare secondary mineral in the uraniferous zone of an altered granite pegmatite.

Association: Metavanmeersscheite, studtite.

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

Name: To honor Professor Maurice Van Meerssche (1923–1990), Belgian crystallographer, Catholic University of Louvain, Louvain, Belgium.

Type Material: Catholic University of Louvain, Louvain, F360; Royal Museum of Central Africa, Tervuren, Belgium, RMG13749.

References: (1) Piret, P. and M. Deliens (1982) La vanmeersscheite $U(UO_2)_3(PO_4)_2(OH)_6 \cdot 4H_2O$, et la méta-vanmeersscheite $U(UO_2)_3(PO_4)_2(OH)_6 \cdot 2H_2O$, nouveaux minéraux. Bull. Minéral., 105, 125–128 (in French with English abs.). (2) (1982) Amer. Mineral., 67, 1077 (abs. ref. 1).