

Vanmeerscheite**U(UO₂)₃(PO₄)₂(OH)₆•4H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. As tabular crystals, flattened on {010} and elongated along [001], modified by {101}, {101}, {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: P2₁mn. 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 ₂ O ₅ | 10.40 | 10.05 |
| H ₂ O | [8.84] | 8.93 |
| Total | [100.00] | 100.00 |

(1) Kobokobo pegmatite, Congo; average of five analyses, H₂O by difference; corresponds to U(UO₂)_{2.96}(PO₄)_{2.06}(OH)₆•3.87H₂O. (2) U(UO₂)₃(PO₄)₂(OH)₆•4H₂O.

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

Association: Metavanmeerscheite, studtite.

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

Name: To honor Professor Maurice Van Meersche (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 vanmeerscheite U(UO₂)₃(PO₄)₂(OH)₆•4H₂O, et la métavanneerscheite U(UO₂)₃(PO₄)₂(OH)₆•2H₂O, nouveaux minéraux. Bull. Minéral., 105, 125–128 (in French with English abs.). (2) (1982) Amer. Mineral., 67, 1077 (abs. ref. 1).