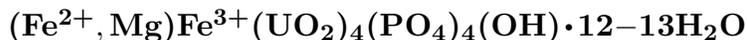


**Vochtenite**

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**Crystal Data:** Monoclinic. *Point Group:* n.d. As crystals, with a squarish outline defined by {001} and {100}, to 1 mm, in subparallel aggregates.

**Physical Properties:** *Cleavage:* On {010}, distinct. *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = ~2.5 D(meas.) = 3.650 D(calc.) = 3.663 Radioactive.

**Optical Properties:** Opaque, translucent in thin fragments. *Color:* Brown. *Streak:* Pale brown. *Luster:* Bronzy.

*Optical Class:* Biaxial (-). *Pleochroism:* Very weak. *Orientation:* X = b; Z ∧ c = small. α = 1.575(2) β = 1.589(2) γ = 1.603(2) 2V(meas.) = n.d. 2V(calc.) = 89(3)°

**Cell Data:** *Space Group:* n.d. a = 12.606 b = 19.990 c = 9.990 β = 102.31° Z = 3

**X-ray Powder Pattern:** Wheal Basset, England.

9.998 (100), 3.475 (70), 3.333 (50), 4.892 (45), 2.152 (45), 2.111 (45), 3.087 (40)

**Chemistry:**

	(1)
UO <sub>3</sub>	63.07
P <sub>2</sub> O <sub>5</sub>	15.65
Fe <sub>2</sub> O <sub>3</sub>	4.04
FeO	3.30
MgO	0.63
H <sub>2</sub> O	13.37
Total	[100.06]

(1) Wheal Basset, England; by electron microprobe, at ten points on each of three crystals; Fe<sup>2+</sup>:Fe<sup>3+</sup> by Mössbauer spectroscopy, H<sub>2</sub>O by TGA, original total given as 100.96%; corresponds to (Fe<sub>0.82</sub><sup>2+</sup>Mg<sub>0.28</sub>)<sub>Σ=1.10</sub>Fe<sub>0.90</sub><sup>3+</sup>(UO<sub>2</sub>)<sub>4</sub>(PO<sub>4</sub>)<sub>4</sub>(OH)<sub>0.90</sub>•12.96H<sub>2</sub>O.

**Occurrence:** A rare secondary mineral in the oxidized zone of a uranium-bearing Cu–Sn hydrothermal mineral deposit.

**Association:** Bassetite.

**Distribution:** From Wheal Basset, Illogan, Cornwall, England.

**Name:** Honoring Professor Renaud F.C. Vochten (1933–), State University, Antwerp, Belgium, uranium mineralogist, who discovered the mineral.

**Type Material:** National Museum of Natural History, Washington, D.C., USA.

**References:** (1) Zwaan, P.C., C.E.S. Arps, and E. de Grave (1989) Vochtenite, (Fe<sup>2+</sup>, Mg)Fe<sup>3+</sup>[UO<sub>2</sub>/PO<sub>4</sub>]<sub>4</sub>(OH)•12–13H<sub>2</sub>O, a new uranyl phosphate mineral from Wheal Basset, Redruth, Cornwall, England. *Mineral. Mag.*, 53, 473–478. (2) (1990) *Amer. Mineral.*, 75, 1212 (abs. ref. 1).