

Wyartite**CaU⁵⁺(UO₂)₂O₄(CO₃)(OH)•7H₂O**

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Crystals are flattened on {001}, striated and elongated along [010], with {110}, to 3 mm.

Physical Properties: *Cleavage:* On {001}, perfect; on {010}, less so. Hardness = 3–4
D(meas.) = 4.69(5) D(calc.) = n.d. Radioactive.

Optical Properties: Opaque to translucent. *Color:* Black, violet-black, greenish if altered.
Streak: Brownish violet. *Luster:* Dull, vitreous to submetallic on cleavages.

Optical Class: Biaxial (-). *Pleochroism:* Strong; X = gray; Y = violet; Z = lavender-blue.

Orientation: X = c; Y = b; Z = a. α = n.d. β = 1.89(2) γ = 1.91(2) 2V(meas.) = 48°

Cell Data: *Space Group:* P2₁2₁2₁. a = 11.2706(8) b = 7.1055(5) c = 20.807(1) Z = 4

X-ray Powder Pattern: Shinkolobwe, Congo.

10.3 (100), 8.54 (30), 5.19 (30), 4.26 (4b), 3.55 (4), 7.64 (3), 4.72 (3)

Chemistry:

	(1)	(2)	(3)
CO ₂	3.6	3.4	4.05
UO ₂	10.9	10.1	
UO ₃	71.6	70.7	52.71
U ₂ O ₅			25.62
CaO	6.8	6.3	5.17
H ₂ O	7.2	9.7	12.45
Total	100.1	100.2	100.00

(1–2) Shinkolobwe, Congo. (3) CaU⁵⁺(U⁶⁺O₂)₂O₄(CO₃)(OH)•7H₂O.

Occurrence: A rare secondary mineral formed as an alteration product of uraninite in the oxide zone of a uranium deposit.

Association: Wölsendorfite, rutherfordine, uranophane, masuyite, urancalcarite, uraninite.

Distribution: From Shinkolobwe, Katanga Province, Congo (Shaba Province, Zaire).

Name: Honors Dr. Jean Wyart (1902–1992), French crystallographer, Professor of Mineralogy, Sorbonne, Paris, France.

Type Material: Royal Museum of Central Africa, Tervuren, Belgium, RMG2222; Natural History Museum, Paris, France, V 5686; National School of Mines, Paris, France; The Natural History Museum, London, England, 1969,47; National Museum of Natural History, Washington, D.C., USA, 150331.

References: (1) Guillemin, C. and J. Protas (1959) Ianthinite et wyartite. Bull. Minéral., 82, 80–86 (in French). (2) (1959) Amer. Mineral., 44, 908 (abs. ref. 1). (3) Bignand, C. (1955) Sur les propriétés et les synthèses de quelques minéraux uranifères. Bull. Minéral., 78, 1–26 (in French). (4) Clark, J.R. (1960) X-ray study of alteration in the uranium mineral wyartite. Amer. Mineral., 45, 200–208. (5) Burns, P.C., and R.J. Finch (1999) Wyartite: crystallographic evidence for the first pentavalent-uranium mineral. Amer. Mineral., 84, 1456–1460.