

## Dumontite

## $\text{Pb}_2(\text{UO}_2)_3\text{O}_2(\text{PO}_4)_2 \cdot 5\text{H}_2\text{O}$

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**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . Crystals, elongated or platy, striated along [001], flattened || {010}, showing {100}, {001}, {010}, {011}, {013}, to 1.5 mm; may form stellate aggregates.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = 5.65(4)$   $D(\text{calc.}) = 5.666$  May fluoresce pale green under UV. Radioactive.

**Optical Properties:** Translucent. *Color:* Yellow to ocher-yellow. *Streak:* Yellow to ocher-yellow.

*Optical Class:* Biaxial (+). *Pleochroism:* Strong;  $X$  = pale yellow;  $Z$  = deep yellow.

*Orientation:*  $X = a$ ;  $Y = c$ ;  $Z = b$ . *Dispersion:*  $r < v$ , strong.  $\alpha = 1.85\text{--}1.88$   $\beta = 1.87\text{--}1.89$   $\gamma = [\approx 1.90]$   $2V(\text{meas.}) = \text{Large}$ .

**Cell Data:** *Space Group:*  $P2_1/m$ .  $a = 8.118(6)$   $b = 16.819(8)$   $c = 6.983(3)$   
 $\beta = 109.03(5)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Shinkolobwe, Congo.

4.27 (FF), 3.00 (F-FF), 2.95 (F-FF), 3.48 (F), 6.14 (mF), 4.20 (mF), 3.74 (mF)

### Chemistry:

	(1)	(2)	(3)
$\text{UO}_3$	56.49	54.1	55.85
$\text{TeO}_3$	1.01		
$\text{P}_2\text{O}_5$	8.65	10.5	9.24
$\text{PbO}$	27.19	28.6	29.05
$\text{H}_2\text{O}$	5.78	5.9	5.86
Total	99.12	99.1	100.00

(1) Shinkolobwe, Congo. (2) Do.;  $\text{UO}_3$  and  $\text{P}_2\text{O}_5$  average of two analyses,  $\text{PbO}$  and  $\text{H}_2\text{O}$  average of three analyses. (3)  $\text{Pb}_2(\text{UO}_2)_3\text{O}_2(\text{PO}_4)_2 \cdot 5\text{H}_2\text{O}$ .

**Occurrence:** In pockets of torbernite in the oxidized zone of a uranium deposit (Shinkolobwe, Congo).

**Association:** Torbernite (Shinkolobwe, Congo); uranophane, kasolite, autunite (near Nogales, Arizona, USA); kasolite (Goodsprings, Nevada, USA).

**Distribution:** From Shinkolobwe, Katanga (Shaba) Province, and at the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire). In the USA, at the White Oak property, near Nogales, Santa Cruz Co., Arizona; in the Green Monster and Desert Valley mines, Goodsprings district, Clark Co., Nevada. From the South Alligator Valley, and in the Ranger mine, Jabiru, Northern Territory, Australia.

**Name:** Honoring André Hubert Dumont (1809–1857), Belgian geologist.

**Type Material:** Natural History Museum, Paris, France, 125.11.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 928–929. (2) Thoreau, J., M. Van Meerssche, and J. Protas (1958) Sur la dumontite de Shinkolobwe (Katanga). Bull. Soc. fr. Minéral., 81, 63–65 (in French). (3) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 236–238. (4) Piret, P. and J. Piret-Meunier (1988) Nouvelle détermination de la structure cristalline de la dumontite  $\text{Pb}_2[(\text{UO}_2)_3\text{O}_2(\text{PO}_4)_2] \cdot 5\text{H}_2\text{O}$ . Bull. Minéral., 111, 439–442 (in French with English abs.). (5) Guillemin, C. (1958) Minéraux d'uranium du Haut Katanga, 54.