## Curite $Pb_3(UO_2)_8O_8(OH)_6 \cdot 3H_2O$



**Crystal Data:** Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals long prismatic to acicular and striated ‖ [001], with forms {100}, {110}, {111}; as porous aggregates of fine needles, fine-granular, as opaline crusts, and massive.

**Physical Properties:** *Cleavage:* {100}. *Tenacity:* Brittle. Hardness = 4–5
D(meas.) = 6.98–7.4 D(calc.) = 7.37

**Optical Properties:** Semitransparent. *Color:* Deep to pale red-orange, orange, scarlet, may be black with included oxides; yellow to reddish orange in transmitted light. *Streak:* Orange. *Luster:* Adamantine.
*Optical Class:* Biaxial (–). *Pleochroism:* $X$ = pale yellow; $Y$ = pale red-orange; $Z$ = dark red-orange. *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r > v$, strong. $\alpha = 2.05$–$2.06$ $\beta = 2.07$–$2.11$ $\gamma = 2.12$–$2.15$ 2V(meas.) = Large.

**Cell Data:** *Space Group: Pnam.* $a = 12.551(9)$ $b = 13.003(20)$ $c = 8.390(13)$ Z = 2

**X-ray Powder Pattern:** "Katanga" district, Congo.
6.28 (10), 3.97 (9), 3.14 (8), 2.55 (6), 2.10 (5), 1.74 (5), 3.53 (4)

**Chemistry:**

| | (1) | (2) | (3) |
|---|---|---|---|
| $UO_3$ | 74.22 | 76.49 | 74.63 |
| $SiO_2$ | | 0.06 | |
| $Fe_2O_3$ | 0.17 | | |
| PbO | 21.32 | 21.08 | 21.84 |
| BaO | | 0.11 | |
| $H_2O$ | 3.51 | 2.43 | 3.53 |
| Total | [99.22] | 100.17 | 100.00 |

(1) Congo; average of three analyses, original total given as 99.92%. (2) Do.
(3) $Pb_3(UO_2)_8O_8(OH)_6 \cdot 3H_2O$.

**Occurrence:** A secondary mineral commonly formed through alteration of uraninite.

**Association:** Fourmarierite, vandendriesscheite, schoepite, soddyite, kasolite, dewindtite, torbernite, rutherfordine, sklodowskite.

**Distribution:** At Shinkolobwe, Katanga Province, Congo (Shaba Province, Zaire). From La Crouzille, Puy-de-Dôme, France. At Menzenschwand, Black Forest, and Wölsendorf, Bavaria, Germany. In the El Dorado mine, Great Bear Lake, Northwest Territories; from the Elliot Lake district and at Villeneuve, Quebec; and elsewhere in Canada. In Australia, in the Nabarlek, Jabiru, and Koongarra deposits, Northern Territory. From Malakialina, Madagascar.

**Name:** To honor French physicist Pierre Curie (1856–1906), student of radioactivity.

**Type Material:** Natural History Museum, Paris, France, 121.248; The Natural History Museum, London, England, 1924,337.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 629–631. (2) Frondel, C. (1958) Systematic mineralogy of uranium and thorium. U.S. Geol. Sur. Bull. 1064, 92–95. (3) Taylor, J.C., W.I. Stuart, and I.A. Mumme (1981) The crystal structure of curite. J. Inorg. Nucl. Chem., 43, 2419–2423.