

Francevillite

(Ba,Pb)(UO₂)₂(V₂O₈)•5H₂O

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Crystal Data: Orthorhombic. *Point Group:* 2/m 2/m 2/m. Commonly as crystals, dominantly {111}, rare {100}, {010}, a few other forms, to 8 mm, in aggregates and crusts. Also massive, in veinlets and as impregnations.

Physical Properties: *Cleavage:* On {001}, perfect. Hardness = 3 D(meas.) = 4.55 D(calc.) = [4.56] Radioactive.

Optical Properties: Semitransparent. *Color:* Lemon-yellow, yellow-orange, orange, greenish yellow; green, brown.

Optical Class: Biaxial (-). *Pleochroism:* X = colorless; Y = Z = yellow. *Orientation:* X = c; Y = b; Z = a. $\alpha = 1.750(5)$ $\beta = 1.910(5)$ $\gamma = 1.945(5)$ 2V(meas.) = n.d. 2V(calc.) = 46(2)°

Cell Data: *Space Group:* Pcan. a = 10.419(1) b = 8.510(1) c = 16.763(2) Z = 4

X-ray Powder Pattern: Mounana mine, Gabon.
8.30 (10), 2.98 (8), 4.17 (6), 2.57 (6), 2.10 (5), 3.27 (4), 2.01 (4)

Chemistry:	(1)
UO ₃	56.70
V ₂ O ₅	18.56
PbO	2.05
BaO	13.90
H ₂ O	8.85
Total	100.06

(1) Mounana mine, Gabon; corresponds to (Ba_{0.92}Pb_{0.09})_{Σ=1.01}(UO₂)_{2.00}(V₂O₈)_{1.03}•4.96H₂O.

Polymorphism & Series: Forms a series with curienite.

Occurrence: In the oxidized zone of a Pb-bearing U–V deposit (Mounana mine, Gabon).

Association: Curienite, duttonite, vanuralite, chervetite, mottramite, carnotite, dewindtite, torbernite, uranopile, johannite, kasolite (Mounana mine, Gabon).

Distribution: Exceptional crystals from the Mounana uranium mine, Franceville, Gabon. At Kambove and in the Musonoi mine, near Kolwezi, Katanga Province, Congo (Shaba Province, Zaire). On the southwest edge of the Chimeja Range, about four km north of Lubimbi Spring, Zimbabwe. From Bertholène and Lussagues, Aveyron, and Saint-Pierre, Cantal, France. In Germany, on the Donnersberg, near Imsbach, Rhineland-Palatinate; in the Black Forest, at Nussbach, near Triberg, and from the Clara mine, near Oberwolfach. In the South Terras mine, St. Stephen-in-Brannel, Cornwall, England. At the Tyuya-Muyun Cave, Fergana Valley, Alai Range, Kyrgyzstan. From the Otish Mountains, Quebec, Canada. In the USA, at Jim Thorpe, Carbon Co., Pennsylvania.

Name: For its original occurrence near Franceville, Gabon.

Type Material: National School of Mines, Paris, France; The Natural History Museum, London, England, 1958,597.

References: (1) Branche, G., M.-E. Ropert, F. Chantret, B. Morignat, and R. Pouget (1957) La francevillite, nouveau minéral uranifère. *Compt. Rendus Acad. Sci. Paris*, 245, 89–91 (in French). (2) (1958) *Amer. Mineral.*, 43, 180 (abs. ref. 1). (3) Cesbron, F. and N. Morin (1968) Une nouvelle espèce minérale: la curiénite. *Étude de la série francevillite-curiénite*. *Bull. Minéral.*, 91, 453–459 (in French with English abs.). (4) Mereiter, K. (1986) Crystal structure refinements of two francevillites, (Ba,Pb)[(UO₂)₂V₂O₈]•5H₂O. *Neues Jahrb. Mineral., Monatsh.*, 552–560.

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