Fontanite $Ca(UO_2)_3(CO_3)_4 \cdot 3H_2O$

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. As rectangular crystals, bladed on {010} and elongated along [001], to 1.2 mm; in divergent sprays.

Physical Properties: *Cleavage:* Good on {100}, {010}, and {001}. Hardness = 3 D(meas.) = 4.10 D(calc.) = 4.19 Radioactive; pale green fluorescence under LW UV.

Optical Properties: Transparent. *Color:* Bright yellow. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Orientation:* $X = b$; $Y = a$; $Z = c$. *Dispersion:* $r < v$, weak. $\alpha = [1.603]$ $\beta = 1.690(2)$ $\gamma = 1.710(3)$ 2V(meas.) = 49(2)°

Cell Data: *Space Group:* $Pmnm$, $Pmn2_1$, or $P2_1nm$. $a = 15.337(3)$ $b = 17.051(3)$ $c = 6.931(2)$ Z = 4

X-ray Powder Pattern: Rabéjac deposit, France.
8.55 (100), 2.772 (70), 4.11 (60), 3.723 (60), 6.94 (50), 3.460 (50), 3.211 (40)

Chemistry:

	(1)	(2)
CO_2	14.80	15.38
UO_3	76.14	75.00
CaO	4.15	4.90
H_2O	[4.91]	4.72
Total	[100.00]	100.00

(1) Rabéjac deposit, France; by electron microprobe, CO_2 by CHN analyzer, UO_3 and CaO averages of four analyses, H_2O by difference; corresponds to $Ca_{0.85}(UO_2)_{3.08}(CO_3)_{3.89} \cdot 3.15H_2O$.
(2) $Ca(UO_2)_3(CO_3)_4 \cdot 3H_2O$.

Occurrence: A rare secondary mineral in the oxidized portions of a uranium deposit.

Association: Billietite, uranophane.

Distribution: From the Rabéjac uranium deposit, seven km south-southeast of Lodève, Hérault, France.

Name: Honors François Fontan (1942–), mineralogist specializing in phosphates, University Paul-Sabatier, Toulouse, France.

Type Material: Royal Belgian Institute of Natural Sciences, Brussels, Belgium, RC4216.

References: (1) Deliens, M. and P. Piret (1992) La fontanite, carbonate hydraté d'uranyle et de calcium, nouvelle espèce minérale de Rabejac, Hérault, France. Eur. J. Mineral., 4, 1271–1274 (in French with English abs.). (2) (1993) Amer. Mineral., 78, 846–847 (abs. ref. 1).