

Crystal Data: Monoclinic. *Point Group:* 2/m. 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.) = 3.984 Radioactive; pale green fluorescence under LW UV.

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

Cell Data: *Space Group:* $P2_1/n$. $a = 6.968(3)$ $b = 17.276(7)$ $c = 15.377(6)$ $\beta = 90.064(6)^\circ$ $Z = 4$

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 |
| $\underline{\text{H}_2\text{O}}$ | [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 $\text{Ca}_{0.85}(\text{UO}_2)_{3.08}(\text{CO}_3)_{3.89} \cdot 3.15\text{H}_2\text{O}$.

(2) $\text{Ca}(\text{UO}_2)_3(\text{CO}_3)_4 \cdot 3\text{H}_2\text{O}$.

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* (1942-2007), 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'uranylique 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). (3) Hughes, K.-A. and P.C. Burns (2003) A new uranyl carbonate sheet in the crystal structure of fontanite, $\text{Ca}[(\text{UO}_2)_3(\text{CO}_3)_2\text{O}_2](\text{H}_2\text{O})_6$. Amer. Mineral., 88, 962-966. (4) Colmenero, F., J. Plášil, and J. Sejkora (2020) The crystal structures and mechanical properties of the uranyl carbonate minerals roubaultite, fontanite, sharpite, widenmannite, grimelite and cejkaite. Inorganic Chemistry Frontiers, 7, 4197-4221.