

Rabéjacite

Ca(UO₂)₄(SO₄)₂(OH)₆•6H₂O

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Crystal Data: Orthorhombic. *Point Group:* n.d. Crystals are flattened on {001}, or acicular, elongated along [001], to 0.1 mm; in rosettes, rounded nodules, and microcrystalline crusts.

Physical Properties: Hardness = 3 D(meas.) = > 4.1 D(calc.) = 4.31 Radioactive; pale yellow fluorescence under SW and LW UV.

Optical Properties: Transparent to translucent. *Color:* Bright yellow, amber-yellow, brownish yellow. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Pleochroism:* Strong; Y = very pale yellow; Z = sulfur-yellow.

Orientation: X = c; Y and Z ⊥ [001]. *Dispersion:* r > v, weak. α = [1.617] β = 1.710(2) γ = 1.758(2) 2V(meas.) = 68(2)°

Cell Data: *Space Group:* n.d. a = 8.73(1) b = 17.09(2) c = 15.72(2) Z = 4

X-ray Powder Pattern: Rabéjac deposit, France.

7.90 (100), 3.49 (80), 3.38 (70), 3.98 (40), 4.17 (30), 2.844 (30b), 2.163 (15)

Chemistry:

	(1)	(2)	(3)
SO ₃	10.91	10.43	10.52
UO ₃	80.12	76.63	75.15
CaO	2.89	2.76	3.68
H ₂ O	10.18	10.18	10.65
Total	104.10	[100.00]	100.00

(1) Rabéjac deposit, France; by electron microprobe, average of 20 analyses, H₂O by chromatography; corresponds to Ca_{0.76}(UO₂)_{4.15}(SO₄)_{2.02}(OH)_{5.78}•5.86H₂O. (2) Analysis (1) normalized to 100.00%. (3) Ca(UO₂)₄(SO₄)₂(OH)₆•6H₂O.

Occurrence: A rare secondary mineral in the oxidation zone of uranium deposits, formed by alteration of uraninite.

Association: Gypsum, johannite, uraninite.

Distribution: In France, from the Rabéjac uranium deposit, seven km south-southeast of Lodève, and at the Mas-d'Alary uranium deposit, three km south-southeast of Lodève, Hérault. From La Creusa, near Les Marécottes, Valais, Switzerland. At Jáchymov (Joachimsthal), Czech Republic.

Name: For its first-noted occurrence in the Rabéjac deposit, France.

Type Material: Royal Belgian Institute of Natural Sciences, Brussels, Belgium, RC 4409, RC 4410.

References: (1) Deliens, M. and P. Piret (1994) La rabejacite, Ca(UO₂)₄(SO₄)₂(OH)₆•6H₂O, nouveau sulfate d'uranyle et de calcium des gîtes du Lodévois, Hérault, France. Eur. J. Mineral., 5, 873–877 (in French with English abs.). (2) (1994) Amer. Mineral., 79, 572 (abs. ref. 1).