

Crystal Data: Tetragonal. *Point Group:* 4/*m*. As lamellar crystals, elongated along [100] and flattened on {001}, to 2 mm; may be in divergent radial groups.

Physical Properties: Hardness = n.d. D(meas.) = n.d. D(calc.) = 4.00 Fluoresces faint yellow-green in SW UV. Radioactive.

Optical Properties: Transparent to translucent. *Color:* Pale to bright yellow, olive-green.

Luster: Pearly.

Optical Class: Biaxial (-). *Pleochroism:* X = light brown; Y = Z = pale yellow. $\alpha = 1.615(5)$

$\beta = 1.635(2)$ $\gamma = 1.638(2)$ $2V(\text{meas.}) = 27^\circ\text{--}37^\circ$

Cell Data: *Space Group:* P4₂/*m*. $a = 7.16$ $c = 17.20$ $Z = 2$

X-ray Powder Pattern: Riviéral deposit, France.

3.59 (100), 8.66 (70), 2.98 (60), 5.09 (40), 3.50 (30), 2.545 (30), 2.288 (30)

Chemistry:

	(1)	(2)
UO ₃	54.44	53.80
P ₂ O ₅	0.76	
As ₂ O ₅	20.64	21.61
FeO	0.63	
ZnO	6.47	7.65
H ₂ O	17.06	16.94
Total	[100.00]	100.00

(1) Riviéral deposit, France; recalculated from an original total of 99.43% after deduction of barite 7.40%; corresponds to (Zn_{0.84}Fe_{0.09})_{Σ=0.93}(UO₂)_{2.00}[(AsO₄)_{1.88}(PO₄)_{0.12}]_{Σ=2.00}•9.96H₂O.

(2) Zn(UO₂)₂(AsO₄)₂•10H₂O.

Mineral Group: Meta-autunite group.

Occurrence: A rare secondary mineral formed by alteration of arsenic-bearing minerals.

Association: Sphalerite, coffinite, uraninite, arsenopyrite (Riviéral deposit, France); adamite, legrandite, köttigite, scorodite, pharmacosiderite (Sterling Hill, New Jersey, USA).

Distribution: From the Riviéral uranium deposit, Saint-Martin-du-Bosc, five km southeast of Lodève, and in the Mas-d'Alary uranium deposit, three km south-southeast of Lodève, Hérault, France. From Sterling Hill, Ogdensburg, Sussex Co., New Jersey, USA.

Name: The prefix *meta* indicates membership in the *meta-autunite* group; the name is for Lodève, France, near which the first specimens were collected.

Type Material: Atomic Energy Commission, Fontenay-aux-Roses; National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 165403.

References: (1) Agriner, H., F. Chantret, J. Geffroy, B. Héry, B. Bachet, and H. Vachey (1972) Une nouvelle espèce minérale: la méta-lodèveite (arséniate hydraté d'uranium et de zinc). Bull. Minéral., 95, 360–364 (in French with English abs.). (2) (1974) Amer. Mineral., 59, 210–211 (abs. ref. 1).