

Vésigniéite

BaCu₃(VO₄)₂(OH)₂

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Crystal Data: Monoclinic. *Point Group:* 2/m. Lamellar pseudo-hexagonal crystals, to 2 mm, in botryoidal aggregates; powdery. *Twinning:* Common, polysynthetic, on {001}.

Physical Properties: *Cleavage:* {001}, perfect; {110}, imperfect. Hardness = 3–4
D(meas.) = 4.56(10) D(calc.) = 4.70

Optical Properties: Semitransparent. *Color:* Yellow-green to dark olive-green.

Streak: Greenish. *Luster:* Vitreous.

Optical Class: Biaxial (-). *Orientation:* Z = elongation; extinction 10° from the twinning plane.

$\alpha = 2.04$ $\beta = 2.07$ $\gamma = 2.08$ $2V(\text{meas.}) = \sim 60^\circ$

Cell Data: *Space Group:* C2/m. $a = 10.239\text{--}10.270$ $b = 5.885\text{--}5.911$ $c = 7.725\text{--}7.711$
 $\beta = 116.42^\circ\text{--}116.43^\circ$ $Z = 2$

X-ray Powder Pattern: Vrančice, Czech Republic.

3.207 (10), 2.709 (9), 2.288 (8), 2.554 (7), 1.815 (6), 1.610 (6), 1.475 (6)

Chemistry:

	(1)	(2)
V ₂ O ₅	32.4	30.73
CuO	39.1	40.32
BaO	24.9	25.91
H ₂ O	3.6	3.04
Total	[100.0]	100.00

(1) Friedrichroda, Germany; recalculated after deduction of insoluble, 3.3%, original total 99.5%.

(2) BaCu₃(VO₄)₂(OH)₂.

Occurrence: A rare secondary mineral formed in copper-bearing U–V deposits.

Association: Volborthite, malachite, tyuyamunite, carnotite, barite, calcite.

Distribution: From [the Gottlob mine], Friedrichroda, Thuringia, and Bad Lauterberg, Harz Mountains, Germany. At Perm, Ural Mountains, Russia. In the Agalyk U–V deposit, Kara-Tyube Mountains, 15 km south of Samarkand, Uzbekistan. At Vrančice, about 15 km south-southeast of Příbram, Czech Republic. From the Roua copper mines, about 50 km north of Nice, Alpes Maritimes, France. In the Newhurst quarry, near Shepshed, and the Bardon quarry, Coalville, Leistershire, England. At the Mashamba West mine, Kolwezi, Katanga Province, Congo (Shaba Province, Zaire). In the USA, from the Paradox Bell mine, Paradox Valley, Montrose Co., Colorado; in Arizona, at the Monument #1 mine, Navajo Co., from the Ridenaur breccia pipe, Coconino Co., and about six km south of Mercer Ranch, Copper Creek district, Pinal Co.; in the Gold Quarry mine, near Carlin, Maggie Creek district, and the Goldstrike mine, Lynn district, Eureka Co., Nevada. At the Edelweiss mine, Burra, South Australia. From the Gorob-Hope copper deposit, west-central Namibia.

Name: Honoring Colonel Jean Paul Louis Vésignié (1870–1954), noted French mineral collector.

Type Material: National School of Mines, Paris, France.

References: (1) Guillemin, C. (1955) Une nouvelle espèce minérale: la vésigniéite, Cu₃Ba(VO₄)₂(OH)₂. Compt. Rendus Acad. Sci. Paris, 240, 2331–2333 (in French). (2) (1955) Amer. Mineral., 40, 942–943 (abs. ref. 1). (3) Guillemin, C. and Z. Johan (1976) Étude radiocristallographie de la vésigniéite, Cu₃Ba(VO₄)₂(OH)₂. Compt. Rendus Acad. Sci. Paris, 282, 803–805 (in French). (4) Zhesheng Ma, Ruilin He, and Xiaoling Zhu (1990) Redetermination of the crystal structure of vésigniéite. Acta Geologica Sinica, 64(4), 302–308 (in Chinese with English abs.).

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