

## Taranakite



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**Crystal Data:** Hexagonal. *Point Group:*  $\bar{3}2/m$ . Pseudohexagonal platy crystals, rarely to 0.5 mm; typically in compact nodular aggregates, pulverulent, powdery, flourlike to claylike, massive.

**Physical Properties:** *Tenacity:* Unctuous. *Hardness =* Very soft. *D(meas.) =* 2.12–2.15 *D(calc.) =* 2.12

**Optical Properties:** Transparent. *Color:* White, gray, yellowish white; colorless in transmitted light.

*Optical Class:* Uniaxial (–).  $\omega = 1.506\text{--}1.510$   $\epsilon = 1.500\text{--}1.503$

**Cell Data:** *Space Group:*  $R\bar{3}c$  (synthetic).  $a = 8.7025(11)$   $c = 95.05(1)$   $Z = 6$

**X-ray Powder Pattern:** Apulian Cave PU 38, Italy.  
15.82 (100), 3.82 (40), 3.14 (31), 3.36 (29), 7.47 (28), 3.59 (22), 7.92 (18)

<b>Chemistry:</b>	(1)	(2)	(3)	(1)	(2)	(3)	
P <sub>2</sub> O <sub>5</sub>	42.32	41.88	42.30	K <sub>2</sub> O	7.09	8.43	10.53
Al <sub>2</sub> O <sub>3</sub>	19.03	17.48	18.99	H <sub>2</sub> O	31.10	28.43	28.18
Fe <sub>2</sub> O <sub>3</sub>	0.42	1.67		insol.		0.37	
Na <sub>2</sub> O		1.28					
				Total	99.96	99.54	100.00

(1) Onino-Iwaya Cave, Japan; by gravimetry and flame photometry; corresponds to H<sub>7.09</sub>K<sub>1.97</sub>(Al, Fe)<sub>4.98</sub>(PO<sub>4</sub>)<sub>8</sub>•19.7H<sub>2</sub>O. (2) Castellana Cave, Italy. (3) K<sub>3</sub>Al<sub>5</sub>(PO<sub>4</sub>)<sub>2</sub>(PO<sub>3</sub>OH)<sub>6</sub>•18H<sub>2</sub>O.

**Occurrence:** Formed from phosphatic solutions derived from bird or bat guano reacting with clays or aluminous rocks under perennially damp conditions; the most common phosphate mineral in caves.

**Association:** Vashegyite, leucophosphate, minyulite, francoanellite, brushite, ardealite, strengite, variscite, vivianite.

**Distribution:** From the Sugarloaves, near New Plymouth, Taranaki Peninsula, New Zealand. On Réunion Island, Indian Ocean; Island Leones, Patagonia, Argentina; King George Island, Maritime Antarctic. In Australia, in the Russenden Cave, Queensland; the Skipton lava tube caves, 40 km southwest of Ballarat, Victoria; in caves at Mimegarra, Western Australia; and the Jenolan Caves, New South Wales. In the Yangsue Posayen Cave, 20 km south of Guilin, Guangxi Province, China. From the Niah Great Cave, Sarawak, Malaysia. In the Onino-Iwaya Cave, Hiroshima Prefecture, Japan. From the Tour Combes Cave, near Oran, Algeria. In Etienne's Cave, and well-crystallized in Christmas Cave, Transvaal, South Africa. From the Bacho Kuo Cave, Bulgaria. In the Minerva Grotto, Fauzan, Hérault, France. In Italy, in the Castellana Cave, south of Bari, Puglia; on Monte Alburno, near Controne, Salerno. In the USA, in the Pig Hole Cave, Giles Co., Virginia; and the Low Water Bridge Cave, Greene Co., Missouri. Additional localities are known.

**Name:** For its first recognized occurrence on the Taranaki Peninsula, New Zealand.

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