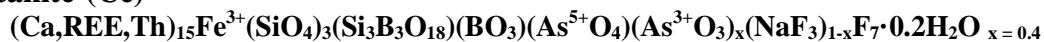


Vicanite-(Ce)



Crystal Data: Hexagonal. *Point Group:* 3m. As terminated prismatic crystals, to 0.3 mm in aggregates to 0.8 mm. *Twinning:* When present gives a pseudocubic habit.

Physical Properties: *Cleavage:* None. *Fracture:* Conchoidal. Hardness = 5-6
D(meas.) = >4.2 D(calc.) = 4.73

Optical Properties: Transparent. *Color:* Yellowish green. *Streak:* White. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.757(2)$ $\varepsilon = 1.722(2)$ *Pleochroism:* None.

Cell Data: *Space Group:* R3m. $a = 10.8112(2)$ $c = 27.3296(12)$ $Z = 3$

X-ray Powder Pattern: Tre Croci, Vetralla, Viterbo Province, Italy.
2.993 (100), 2.950 (70), 7.70 (50), 4.42 (50), 3.13 (50), 2.698 (50), 1.839 (50)

Chemistry:	(1)	(1)
SiO ₂	13.82	UO ₂ 1.96
Al ₂ O ₃	0.16	La ₂ O ₃ 12.01
TiO ₂	0.14	Ce ₂ O ₃ 14.41
P ₂ O ₅	0.38	Pr ₂ O ₃ 2.77
As ₂ O ₃	4.49	Nd ₂ O ₃ 1.79
Fe ₂ O ₃	1.66	B ₂ O ₃ [5.27]
CaO	17.07	F 7.50
Na ₂ O	0.14	<u>- O = F</u> 3.16
ThO ₂	18.24	Total 98.65

(1) Tre Croci, Vetralla, Viterbo Province, Italy; electron microprobe analysis supplemented by IR spectroscopy, arsenic partitioned as As⁵⁺ to fill the cation site and the remainder as As³⁺, B₂O₃ calculated for 4 B apfu; corresponding to (Ca_{8.03}Ce_{2.32}La_{1.95}Th_{1.82}Pr_{0.44}Nd_{0.28}U_{0.19}) $\Sigma=15.06$ (As⁵⁺_{0.86}P_{0.14}) $\Sigma=1.00$ (As³⁺_{0.34}Na_{0.12}) $\Sigma=0.46$ (Fe³⁺_{0.57}Ti_{0.05}Al_{0.08}) $\Sigma=0.67$ Si_{6.07}B₄(O_{36.57}F_{10.43}) $\Sigma=47$.

Mineral Group: Vicanite group.

Occurrence: As crystals in miarolitic cavities in volcanic ejecta of syenitic composition.

Association: Zircon, thorite, thorian uraninite, betafite, thorian hellandite, titanite, antimonian asbecasite, apatite, stillwellite-(Ce).

Distribution: At Tre Croci, Vetralla (north of Rome), Viterbo province, Italy.

Name: For the *Vican* volcanic complex (Italy) where the mineral was found.

Type: Mineralogical Museum, University of Rome, Italy.

References: (1) Maras, A., G.C. Parodi, G. della Ventura, and D. Ohnenstetter (1995) Vicanite-(Ce): A new Ca-Th-REE borosilicate from the Vico volcanic district (Latium, Italy). *Eur. J. Mineral.*, 7, 439-446. (2) Ballirano, P., A. Callegari, F. Caucia, A. Maras, F. Mazzi, and L. Ungarerri (2002) The crystal structure of vicanite-(Ce), a borosilicate showing an unusual (Si₃B₃O₁₈)¹⁵⁻ polyanion. *Amer. Mineral.*, 87, 1139-1143.