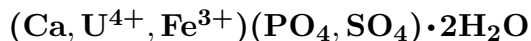


# Tristramite



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**Crystal Data:** Hexagonal. *Point Group:*  $6/m\ 2/m\ 2/m$ . Acicular to fibrous crystals, to 0.1 mm, in coarse- to fine-grained aggregates, which may be radial or cross-vein.

**Physical Properties:** Hardness = n.d.  $D(\text{meas.}) = 3.8\text{--}4.2$   $D(\text{calc.}) = 4.18$  Radioactive.

**Optical Properties:** Semitransparent. *Color:* Yellow, greenish yellow; in transmitted light, pale yellow to greenish yellow, showing color banding. *Luster:* Vitreous.

*Optical Class:* Uniaxial (+); may exhibit anomalous blue birefringence. *Orientation:* Positive elongation.  $\omega = 1.644(2)$   $\epsilon = 1.664(2)$

**Cell Data:** *Space Group:*  $P6_222$ .  $a = 6.913(6)$   $c = 6.422(6)$   $Z = 3$

**X-ray Powder Pattern:** Wheal Trewavas, England.

2.99 (100), 2.83 (100), 2.14 (50), 1.850 (50), 5.99 (40), 4.37 (40), 3.46 (30)

## Chemistry:

	(1)
SO <sub>3</sub>	4.31
P <sub>2</sub> O <sub>5</sub>	25.09
CO <sub>2</sub>	[1.46]
UO <sub>2</sub>	35.08
Fe <sub>2</sub> O <sub>3</sub>	5.99
CaO	13.74
H <sub>2</sub> O	[14.33]
Total	[100.00]

(1) Wheal Trewavas, England; by electron microprobe, total U as UO<sub>2</sub>, total Fe as Fe<sub>2</sub>O<sub>3</sub>, CO<sub>2</sub> for charge balance, H<sub>2</sub>O by difference; corresponds to  $(\text{Ca}_{0.54}\text{U}_{0.29}\text{Fe}_{0.17})_{\Sigma=1.00}[(\text{PO}_4)_{0.79}(\text{SO}_4)_{0.12}(\text{CO}_3)_{0.07}]_{\Sigma=0.98} \cdot 1.77\text{H}_2\text{O}$ .

**Mineral Group:** Rhabdophane group.

**Occurrence:** In fractures and cavities in hydrothermal veins.

**Association:** Uraninite, goethite, digenite, chalcopyrite, pyrite, sphalerite, galena, marcasite, quartz.

**Distribution:** In England, from Cornwall, at Wheal Trewavas, Breage; Trequeen; Wheal Buller, Redruth; Wheal Damsel, Gwennap; Wheals Providence and Alice, Lelant.

**Name:** For Sir Tristram, a figure in the Arthurian legend.

**Type Material:** Institute of Geological Sciences, London; The Natural History Museum, London, England, 1983,201.

**References:** (1) Atkin, D., I.R. Basham, and J.F.W. Bowles (1983) Tristramite, a new calcium uranium phosphate of the rhabdophane group. *Mineral. Mag.*, 47, 393–396. (2) (1984) *Amer. Mineral.*, 69, 813 (abs. ref. 1).