

Tengchongite

$\text{CaO}_5(\text{UO}_2)_6(\text{MoO}_4)_2 \cdot 12\text{H}_2\text{O}$

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Crystal Data: Orthorhombic. *Point Group:* 222. As fine granular crystals, thin tabular to micaceous on {001}.

Physical Properties: *Cleavage:* On {001}, perfect. Hardness = 2–2.5 $D(\text{meas.}) = 4.25(2)$ $D(\text{calc.}) = 4.24$ Radioactive.

Optical Properties: Transparent to translucent. *Color:* Yellow; yellow in transmitted light. *Luster:* Vitreous.

Optical Class: Biaxial (–). *Orientation:* $X = c$. $\alpha = 1.663(2)$ $\beta = 1.760(2)$ $\gamma = 1.762(2)$ $2V(\text{meas.}) = 16^\circ$ $2V(\text{calc.}) = 16^\circ$

Cell Data: *Space Group:* $A2_122$. $a = 15.616(4)$ $b = 13.043(6)$ $c = 17.716(14)$ $Z = 4$

X-ray Powder Pattern: Tongbiguan village, China.

8.84 (10), 3.17 (8), 3.38 (7), 5.37 (5), 4.27 (5), 3.65 (4), 2.04 (4)

Chemistry:	(1)	(2)		(1)	(2)
UO ₃	74.30	75.39	Al ₂ O ₃	0.66	
MoO ₃	11.46	12.65	MnO	0.02	
P ₂ O ₅	0.28		MgO	0.02	
SiO ₂	1.04		CaO	2.19	2.46
TiO ₂	0.07		Na ₂ O	0.07	
ThO ₂	0.12		K ₂ O	0.09	
Fe ₂ O ₃	0.12		H ₂ O	9.00	9.50
			Total	99.44	100.00

(1) Tongbiguan village, China; IR confirmed the presence of $(\text{MoO}_4)^{2-}$, $(\text{UO}_2)^{2-}$, H_2O , and lack of $(\text{OH})^{1-}$; after deduction of impurities, corresponds to $\text{Ca}_{0.96}\text{O}_5(\text{UO}_2)_{6.18}(\text{MoO}_4)_{1.89} \cdot 11.88\text{H}_2\text{O}$.

(2) $\text{CaO}_5(\text{UO}_2)_6(\text{MoO}_4)_2 \cdot 12\text{H}_2\text{O}$.

Occurrence: In the oxidized portions of a uranium deposit in migmatite and gneiss.

Association: Studtite, calcurnolite.

Distribution: From Tongbiguan village, Tengchong Co., Yunnan Province, China.

Name: For Tengchong Co., China, where the first specimens were found.

Type Material: Beijing Uranium Geology Research Institute, Beijing, China.

References: (1) Chen Zhangru, Luo Keding, Tan Falan, Zhang Yi, and Gu Xiaofa (1986) Tengchongite, a new mineral of hydrated calcium uranyl molybdate. *Kexue Tongbao*, 31, 396–401 (in English). (2) (1988) *Amer. Mineral.*, 73, 195–196 (abs. ref. 1).