Tengchongite $CaO_5(UO_2)_6(MoO_4)_2 \cdot 12H_2O$

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(meas.) = 4.25(2) D(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(meas.) = 16° 2V(calc.) = 16°

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_2O_3	0.66	
MoO_3	11.46	12.65	MnO	0.02	
P_2O_5	0.28		MgO	0.02	
SiO_2	1.04		CaO	2.19	2.46
TiO_2	0.07		Na_2O	0.07	
ThO_2	0.12		K_2O	0.09	
Fe_2O_3	0.12		H_2O	9.00	9.50
			Total	99.44	100.00

(1) Tongbiguan village, China; IR confirmed the presence of $(MoO_4)^{2-}$, $(UO_2)^{2-}$, H_2O, and lack of $(OH)^{1-}$; after deduction of impurities, corresponds to $Ca_{0.96}O_5(UO_2)_{6.18}(MoO_4)_{1.89} \cdot 11.88H_2O$.
(2) $CaO_5(UO_2)_6(MoO_4)_2 \cdot 12H_2O$.

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

Association: Studtite, calcurmolite.

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).