Chiluite $Bi_6Te_2^{6+}Mo_2^{6+}O_{21}$

Crystal Data: Hexagonal. *Point Group:* 622, $6/m$, or 6. As hexagonal to irregular grains, to 42 μm, or plumose replacements of other bismuth minerals.

Physical Properties: Hardness = 3.2 VHN = 108 (10 g load). D(meas.) = 3.65 D(calc.) = 3.67

Optical Properties: Semitransparent. *Color:* Yellow; gray in reflected light, with gray-brown internal reflections.
Optical Class: Uniaxial (–). $\omega = 2.4(1)$ $\epsilon = 2.3(1)$ *Anisotropism:* Weak.
R_1–R_2: (410) 19.45–20.75, (430) 19.25–20.45, (450) 18.80–20.00, (470) 18.40–19.50, (490) 18.00–18.90, (510) 17.75–18.60, (530) 17.50–18.40, (550) 17.25–18.25, (570) 17.00–18.05, (590) 16.75–17.80, (610) 16.65–17.60, (630) 16.50–17.40, (650) 16.45–17.30, (670) 16.30–17.20, (690) 16.75–17.00

Cell Data: *Space Group:* $P6_322$, $P6_3m$, or $P6_3$. $a = 8.970$ $c = 13.21$ $Z = 1$

X-ray Powder Pattern: Chilu, China.
3.30 (100), 3.05 (90), 2.51 (50), 2.06 (50), 1.655 (50), 2.88 (40)

Chemistry:

	(1)	(2)
TeO_3	15.83	17.24
MoO_3	15.40	14.13
WO_3	0.21	
Bi_2O_3	68.59	68.63
Sb_2O_3	0.17	
Total	100.20	100.00

(1) Chilu, China; by electron microprobe, average of 24 analyses; O^{2-} confirmed by analysis of synthetic compound, with oxidation states as required for charge balance. (2) $Bi_6Te_2Mo_2O_{21}$.

Occurrence: In quartz veins in a molybdenite deposit.

Association: Bismuthinite, molybdenite, joséite, köchlinite, cassiterite, quartz.

Distribution: From Chilu, Fujian Province, China.

Name: For the occurrence at Chilu, China.

Type Material: n.d.

References: (1) Xiuzhen Yong, Deren Li, Guanxin Wang, Mengxiang Deng, Nansheng Chen, and Shuzhen Wang (1991) A study of chiluite – a new mineral found in Chilu, Fujian, China. Acta Mineralogica Sinica, 9(1), 9–14 (in Chinese with English abs.). (2) (1991) Amer. Mineral., 76, 666 (abs. ref. 1).