

Lanmuchangite

TlAl(SO₄)₂•12H₂O

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Crystal Data: Cubic. *Point Group:* $2/m\bar{3}$. As anhedral grains, to 90 μm , columnar or in aggregates.

Physical Properties: *Tenacity:* Brittle. Hardness = 3.1–3.4 VHN = 94–124
D(meas.) = 2.22 D(calc.) = [2.33] Soluble in H₂O.

Optical Properties: Transparent. *Color:* White to pale yellow. *Streak:* White.
Luster: Vitreous.
Optical Class: Isotropic. $n = 1.495$

Cell Data: *Space Group:* $Pa\bar{3}$. $a = 12.212(5)$ $Z = 4$

X-ray Powder Pattern: Lanmuchang deposit, China.
4.314 (100), 2.801 (70), 7.03 (54), 2.731 (35), 6.11 (27), 3.524 (24), 3.676 (22)

Chemistry:	(1)	(2)
SO ₃	25.19	25.03
SiO ₂	0.10	
Al ₂ O ₃	8.07	7.97
FeO	0.04	
MgO	0.06	
CaO	0.08	
K ₂ O	0.35	
Tl ₂ O	33.25	33.20
H ₂ O	33.46	33.80
Total	100.60	100.00

(1) Lanmuchang deposit, China; by electron microprobe, average of six analyses, H₂O by TGA, (SO₄)²⁻ and H₂O confirmed by IR; corresponds to (Tl_{1.00}K_{0.05})_{Σ=1.05}(Al_{1.01}Si_{0.02}Ca_{0.01}Mg_{0.01}Fe_{0.01})_{Σ=1.06}(SO₄)_{2.02}•11.86H₂O. (2) TlAl(SO₄)₂•12H₂O.

Occurrence: In the oxidation zone of a Tl–Hg deposit.

Association: Melanterite, pickeringite, jarosite, gypsum, potassium alum, arsenolite, sulfur.

Distribution: From the Lanmuchang Tl–Hg deposit, Xinren Co., Guizhou Province, China [TL].

Name: For its occurrence in the Lanmuchang deposit, China.

Type Material: Geological Museum of China, Beijing, China.

References: (1) Chen Daiyan, Wang Guanxin, Zou Zhenxi, and Chen Yuming (2001) A new mineral – lanmuchangite. *Acta Mineral. Sinica*, 21(3), 271–277 (in Chinese with English abs.). (2) (2002) *Amer. Mineral.*, 87, 996–997 (abs. ref. 1).