

**Crystal Data:** Monoclinic. *Point Group:*  $2/m$ . As blades, to  $\sim 0.5$  mm, flattened on  $\{10\bar{1}\}$  and elongated and striated along  $[010]$ . Intergrown in subparallel bundles and less often in sprays.

Crystals display  $\{10\bar{1}\}$ ,  $\{101\}$ , and  $\{111\}$ .

**Physical Properties:** *Cleavage:* Perfect on  $\{101\}$  and  $\{10\bar{1}\}$ . *Fracture:* Splintery.  
*Tenacity:* Brittle. Hardness =  $\sim 2-3$  D(meas.) = n.d. D(calc.) = 2.681 Dissolves in water.

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* Biaxial (+).  $\alpha = 1.579(1)$   $\beta = 1.588(1)$   $\gamma = 1.610(1)$   $2V(\text{meas.}) = 66(2)^\circ$   
 $2V(\text{calc.}) = 66^\circ$  *Orientation:*  $X \approx [10\bar{1}]$ ;  $Y = b$ ;  $Z \approx [101]$ .

**Cell Data:** *Space Group:*  $P2_1/n$ .  $a = 16.016(1)$   $b = 5.7781(3)$   $c = 16.341(1)$   $\beta = 116.704(8)^\circ$   
 $Z = 2$

**X-ray Powder Pattern:** Jote mine, Tierra Amarilla, Copiapó Province, Atacama, Chile.  
13.91 (100), 3.952 (42), 2.823 (39), 3.290 (35), 4.64 (33), 5.39 (22), 7.23 (17)

Chemistry:	(1)	(2)
Na <sub>2</sub> O	0.09	
CaO	24.96	25.62
CuO	0.73	
Al <sub>2</sub> O <sub>3</sub>	10.08	9.32
Fe <sub>2</sub> O <sub>3</sub>	0.19	
As <sub>2</sub> O <sub>5</sub>	40.98	42.01
Sb <sub>2</sub> O <sub>5</sub>	0.09	
H <sub>2</sub> O	[23.46]	25.03
Total	100.58	100.00

(1) Jote mine, Tierra Amarilla, Copiapó Province, Atacama, Chile; average of 5 electron microprobe analyses supplemented by IR spectroscopy, H<sub>2</sub>O calculated; corresponding to  $(\text{Ca}_{4.83}\text{Cu}^{2+}_{0.10}\text{Na}_{0.03})_{\Sigma=4.96}(\text{Al}_{2.14}\text{Fe}^{3+}_{0.03})_{\Sigma=2.17}[(\text{As}^{5+}_{3.87}\text{Sb}^{5+}_{0.01})_{\Sigma=3.88}\text{O}_{16}][(\text{OH})_{3.76}(\text{H}_2\text{O})_{0.24}]_{\Sigma=4.00}(\text{H}_2\text{O})_{10} \cdot 2\text{H}_2\text{O}$ . (2)  $\text{Ca}_5\text{Al}_2(\text{AsO}_4)_4(\text{OH})_4 \cdot 12\text{H}_2\text{O}$ .

**Occurrence:** A late-stage, low-temperature, secondary mineral that occurs in narrow seams and vugs in the oxidized upper portion of a hydrothermal sulfide vein hosted by volcanoclastic rocks.

**Association:** Conichalcite, joteite, mansfieldite, pharmacoalumite, pharmacosiderite, scorodite.

**Distribution:** From the Jote mine, Pampa Larga district, Tierra Amarilla, Copiapó Province, Atacama region, Chile.

**Name:** Honors Enrique Tapia (1955-2008), an accomplished Chilean field mineral collector.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (63594, 64123-64125).

**References:** (1) Kampf, A.R., S.J. Mills, B.P. Nash, M. Dini, and A.A. Molina Donoso (2015) Tapiaitite,  $\text{Ca}_5\text{Al}_2(\text{AsO}_4)_4(\text{OH})_4 \cdot 12\text{H}_2\text{O}$ , a new mineral from the Jote mine, Tierra Amarilla, Chile. *Mineral. Mag.*, 79(2), 345-354. (2) (2016) *Amer. Mineral.*, 101, 2359-2360 (abs. ref. 1).