

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As blades, to ~ 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 = ~ 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(meas.) = 66(2)<sup>o</sup>  
2V(calc.) = 66<sup>o</sup> *Orientation:* X  $\approx$  [10 $\bar{1}$ ]; Y = b; Z  $\approx$  [101].

**Cell Data:** *Space Group:* P2<sub>1</sub>/n.  $a = 16.016(1)$   $b = 5.7781(3)$   $c = 16.341(1)$   $\beta = 116.704(8)$ <sup>o</sup>  
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 (Ca<sub>4.83</sub>Cu<sup>2+</sup><sub>0.10</sub>Na<sub>0.03</sub>) $\Sigma=4.96$ (Al<sub>2.14</sub>Fe<sup>3+</sup><sub>0.03</sub>) $\Sigma=2.17$ [(As<sup>5+</sup><sub>3.87</sub>Sb<sup>5+</sup><sub>0.01</sub>) $\Sigma=3.88$ O<sub>16</sub>][[(OH)<sub>3.76</sub>(H<sub>2</sub>O)<sub>0.24</sub>] $\Sigma=4.00$ (H<sub>2</sub>O)<sub>10</sub>·2H<sub>2</sub>O. (2) Ca<sub>5</sub>Al<sub>2</sub>(AsO<sub>4</sub>)<sub>4</sub>(OH)<sub>4</sub>·12H<sub>2</sub>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) Tapiaite, Ca<sub>5</sub>Al<sub>2</sub>(AsO<sub>4</sub>)<sub>4</sub>(OH)<sub>4</sub>·12H<sub>2</sub>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).