

**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . As thin blades up to ~300  $\mu\text{m}$ , flattened on {001} and exhibiting {001}, {010},  $\{1\bar{1}0\}$ ,  $\{2\bar{1}0\}$ , and {111}, also in sheaf-like bundles, less commonly in divergent sprays, and sometimes as dense crusts and cavity linings. *Twinning:* Ubiquitous by reflection on {001}.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Fracture:* Curved. *Tenacity:* Brittle. Hardness = 2-3 D(meas.) = n.d. D(calc.) = 3.084

**Optical Properties:** Transparent. *Color:* Sky-blue to greenish blue. *Streak:* Very pale blue. *Luster:* Vitreous. *Optical Class:* Biaxial (-).  $\alpha = 1.634$   $\beta = 1.644$   $\gamma = 1.651$   $2V(\text{meas.}) = 78(2)^\circ$   $2V(\text{calc.}) = 79.4^\circ$  *Orientation:*  $X \approx c^*$ ;  $Y \approx b^*$ . *Dispersion:* Weak,  $r < v$ . *Pleochroism:*  $Z = \text{greenish blue}$ ,  $Y = \text{pale greenish blue}$ ,  $X = \text{colorless}$ . *Absorption:*  $Z > Y > X$ .

**Cell Data:** *Space Group:*  $P\bar{1}$ .  $a = 6.0530(2)$   $b = 10.2329(3)$   $c = 12.9112(4)$   $\alpha = 87.413(19)^\circ$   $\beta = 78.480(2)^\circ$   $\gamma = 78.697(2)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Jote mine, Tierra Amarilla, Copiapó Province, Atacama, Chile. 12.76 (100), 4.206 (26), 3.40 (25), 3.92 (24), 5.009 (23), 2.97 (20), 3.233 (19)

<b>Chemistry:</b>	(1)	(2)	(3)
CaO	17.12	15.70	15.72
CuO	12.23	11.22	11.15
Al <sub>2</sub> O <sub>3</sub>	9.07	8.32	7.14
As <sub>2</sub> O <sub>5</sub>	50.83	46.62	48.32
H <sub>2</sub> O	[19.78]	18.14	17.67
Total	109.03	100.00	100.00

(1) Jote mine, Tierra Amarilla, Copiapó Province, Atacama, Chile; average of 5 electron microprobe analyses, H<sub>2</sub>O calculated from structure analysis, OH and H<sub>2</sub>O confirmed by Raman spectroscopy; corresponds to Ca<sub>1.98</sub>Cu<sub>1.00</sub>Al<sub>1.15</sub>As<sub>2.87</sub>H<sub>14.24</sub>O<sub>19</sub>. (2) Analysis 1 normalized. (3) Ca<sub>2</sub>CuAl[AsO<sub>4</sub>][AsO<sub>3</sub>(OH)]<sub>2</sub>(OH)<sub>2</sub>·5H<sub>2</sub>O.

**Occurrence:** In narrow seams and vugs in the oxidized upper portion of a hydrothermal sulfide vein hosted by volcanoclastic rocks.

**Association:** Conichalcite, mansfieldite, pharmacalumite, pharmacosiderite, scorodite.

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

**Name:** For the mine from which the first specimens were collected.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA. (63592–63594).

**References:** (1) Kampf, A.R., S.J. Mills, R.M. Housley, G.R. Rossman, B.P. Nash, M. Dini, and R.A. Jenkins (2013) Joteite, Ca<sub>2</sub>CuAl[AsO<sub>4</sub>][AsO<sub>3</sub>(OH)]<sub>2</sub>(OH)<sub>2</sub>·5H<sub>2</sub>O, a new arsenate with a sheet structure and unconnected acid arsenate groups. *Mineral. Mag.*, 77(6), 2811–2823. (2) (2015) *Amer. Mineral.*, 100, 2010 (abs. ref. 1).