

**Crystal Data:** Monoclinic. *Point Group:* *m*. As thin needles elongated along [010] to ~300  $\mu$ m, typically in divergent sprays or subparallel intergrowths. *Twinning:* Merohedral indicated by the structure refinement.

**Physical Properties:** Cleavage: None. *Tenacity:* Brittle. *Fracture:* Irregular. Hardness = 2.5 D(meas.) = n.d. D(calc.) = 4.140 Nonfluorescent. Dissolves slowly (in minutes) in dilute HCl.

**Optical Properties:** Transparent. *Color:* Pale brown, needle tips appear very dark brown when viewed down the length. *Streak:* White or very pale brown. *Luster:* Adamantine, silky (parallel aggregates).

*Optical Class:* Biaxial (-).  $\alpha = 1.87(1)$   $\beta = 1.956(\text{calc})$   $\gamma = 1.98(1)$   $2V(\text{meas.}) = 60(1)^\circ$

Orientation:  $X = b$ ,  $Y \wedge a = 53^\circ$  in obtuse  $\beta$ . Non-pleochroic.

**Cell Data:** *Space Group:* *Pn*.  $a = 14.7231(6)$   $b = 5.5871(2)$   $c = 17.418(1)$   $\beta = 112.451(8)^\circ$   $Z = 2$

**X-ray Powder Pattern:** Camarones Valley, near Cuya, Arica Province, Chile.

3.162 (100), 2.931 (90), 4.73 (45), 3.004 (37), 3.035 (28), 2.799 (28), 1.832 (26)

Chemistry:	(1)	(2)
CaO	6.93	6.99
Mn <sub>2</sub> O <sub>3</sub>	4.09	4.92
As <sub>2</sub> O <sub>3</sub>	82.13	86.37
Sb <sub>2</sub> O <sub>3</sub>	5.72	
Cl	1.90	2.21
-O = Cl	0.43	0.51
Total	100.34	100.00

(1) Camarones Valley, near Cuya, Arica Province, Chile; average electron microprobe and Raman spectroscopic analyses; corresponding to Ca<sub>2.03</sub>Mn<sup>3+</sup><sub>0.95</sub>(As<sup>3+</sup><sub>13.66</sub>Sb<sup>3+</sup><sub>0.65</sub>)<sub>Σ=14.31</sub>O<sub>24</sub>Cl<sub>0.88</sub>.

(2) Ca<sub>2</sub>MnAs<sub>14</sub>O<sub>24</sub>Cl.

**Occurrence:** Formed by the oxidation of As-bearing primary phases and alteration by saline fluids derived from evaporating meteoric water under hyperarid conditions and perhaps assisted by regional coastal fog.

**Association:** Anhydrite, native arsenic, arsenolite, calcite, claudetite, ferrinartite, gajardoite-3R, leteite, magnesiocopiapite, phosphosiderite, pyrite, realgar, talmessite.

**Distribution:** From the northwest side of Camarones Valley, ~9 km northeast of Cuya, Arica Province, Chile.

**Name:** For a town near the type locality, *Cuya*, Arica Province, Chile.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (74462).

**References:** (1) Kampf, A.R., S.J. Mills, B. Nash, M. Dini, and A.A.M. Donoso (2020) Cuyaite, Ca<sub>2</sub>Mn<sup>3+</sup>As<sup>3+</sup><sub>14</sub>O<sub>24</sub>Cl, a new mineral with an arsenite framework from near Cuya, Camarones Valley, Chile. *Mineral. Mag.*, 84, 477-484.