

**Crystal Data:** Orthorhombic. *Point Group:* 2/m 2/m 2/m. As crystals, elongated along [100] with {001} dominant, to 3 mm; also as powdery masses.

**Physical Properties:** *Cleavage:* Perfect on {001}, good on {110}. *Fracture:* n.d. *Tenacity:* Weak. Hardness = ~ 1 D(meas.) = n.d. D(calc.) = 2.31 Unstable in water.

**Optical Properties:** Transparent to translucent. *Color:* Deep to sky-blue. *Streak:* Light blue. *Luster:* Vitreous.

*Optical Class:* Biaxial (+).  $\alpha = 1.676(2)$   $\beta = 1.715(2)$   $\gamma = 1.785(2)$   $2V(\text{calc.}) = 76^\circ$   
*Pleochroism:* Y = Z = dark blue, X = light blue. *Orientation:* X = c, Y = b, Z = a.

**Cell Data:** *Space Group:* Cmc<sub>2</sub>m.  $a = 7.688(1)$   $b = 10.645(2)$   $c = 5.736(1)$  Z = 4

**X-ray Powder Pattern:** Calleta Pabellon de Pica, Tarapaca region, Chile.  
 2.920 (100), 2.660 (90), 6.285 (69), 3.898 (56), 4.278 (55), 2.763 (36), 2.356 (35)

<b>Chemistry:</b>	(1)	(2)
Cu	37.60	37.71
Cl	41.67	42.08
N	16.54	16.62
<u>H</u>	<u>3.32</u>	<u>3.59</u>
Total	99.13	100.00

(1) Calleta Pabellon de Pica, Tarapaca region, Chile; average of 3 electron microprobe analyses, supplemented by FTIR spectroscopy; corresponds to Cu<sub>1.00</sub>Cl<sub>1.99</sub>N<sub>1.99</sub>H<sub>5.57</sub>. (2) CuCl<sub>2</sub>(NH<sub>3</sub>)<sub>2</sub>.

**Occurrence:** Likely the product of the interaction between NH<sub>3</sub> from guano and Cu from chalcopyrite in underlying igneous rocks.

**Association:** Halite, atacamite, salammoniac, darapskite.

**Distribution:** At Calleta Pabellon de Pica, Tarapaca region, Chile.

**Name:** Recognizes the first mineral described with ammine complex in its crystal structure.

**Type Material:** Mineralogical collection, Universalmuseum Joanneum, Graz, Austria (84.935).

**References:** (1) Bojar, H-P., F. Walter, J. Baumgartner, and G. Färber (2010) Ammineite, CuCl<sub>2</sub>(NH<sub>3</sub>)<sub>2</sub>, a new species containing an ammine complex: mineral data and crystal structure. Can. Mineral., 48, 1359-1371. (2) (2012) Amer. Mineral., 97, 2064-2065 (abs. ref. 1).