

**Chongite****Ca<sub>3</sub>Mg<sub>2</sub>(AsO<sub>4</sub>)<sub>2</sub>(AsO<sub>3</sub>OH)<sub>2</sub>·4H<sub>2</sub>O**

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As prismatic crystals, to 1 mm, elongated along [001] and exhibiting {100}, {110}, {111}, {11 $\bar{1}$ }, {20 $\bar{1}$ } and {311}. Typically in radial aggregates to 2 mm.

**Physical Properties:** *Cleavage:* Good on {100}. *Tenacity:* Brittle. *Fracture:* Conchoidal. Hardness = ~3.5 D(meas.) = 3.09(2) D(calc.) = 3.087 Soluble in dilute HCl.

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous. *Optical Class:* Biaxial (-).  $\alpha = 1.612(1)$   $\beta = 1.626(1)$   $\gamma = 1.635(1)$   $2V(\text{meas.}) = 76.9(1)^\circ$   $2V(\text{calc.}) = 76.9^\circ$  *Orientation:*  $X = b, Z \wedge a = 27^\circ$  in  $\beta$  obtuse. *Dispersion:* Distinct,  $r < v$ .

**Cell Data:** Space Group:  $C2/c$ .  $a = 18.5879(6)$   $b = 9.3660(3)$   $c = 9.9622(7)$   $\beta = 96.916(7)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Torrecillas mine, northern Atacama Desert, Iquique Province, Chile. 3.275 (100), 4.644 (62), 3.372 (62), 3.113 (57), 2.384 (30), 8.35 (29), 4.396 (26)

<b>Chemistry:</b>	(1)	(2)
CaO	19.96	21.07
MgO	9.55	10.09
MnO	1.18	
As <sub>2</sub> O <sub>5</sub>	56.42	57.56
H <sub>2</sub> O	[11.13]	11.28
Total	98.24	100.00

- (1) Torrecillas mine, northern Atacama Desert, Iquique Province, Chile; average of 12 electron microprobe analyses, H<sub>2</sub>O from stoichiometry; corresponds to (Ca<sub>2.90</sub>Mg<sub>1.93</sub>Mn<sub>0.14</sub>) $\Sigma=4.97$ As<sub>4</sub>O<sub>20</sub>H<sub>1007</sub>.  
 (2) Ca<sub>3</sub>Mg<sub>2</sub>(AsO<sub>4</sub>)<sub>2</sub>(AsO<sub>3</sub>OH)<sub>2</sub>·4H<sub>2</sub>O.

**Occurrence:** A secondary mineral from the oxidation of native arsenic and other As-bearing primary phases, followed by later alteration by saline fluids derived from evaporating meteoric water under hyperarid conditions.

**Mineral Group:** Hureaulite group.

**Association:** Native arsenic, arsenolite, gajardoite, talmessite, torrecillasite.

**Distribution:** From the Torrecillas mine, northern Atacama Desert, Iquique Province, Chile.

**Name:** Honors Dr. Guillermo Chong Diaz (b. 1936), a prominent Chilean geologist and academician.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA (65585-65587).

**References:** (1) Kampf, A.R., B.P. Nash, M. Dini, and A.A. Molina Donoso (2016) Chongite, Ca<sub>3</sub>Mg<sub>2</sub>(AsO<sub>4</sub>)<sub>2</sub>(AsO<sub>3</sub>OH)<sub>2</sub>·4H<sub>2</sub>O, a new arsenate member of the hureaulite group from the Torrecillas mine, Iquique Province, Chile. *Mineral. Mag.*, 80(7), 1255-1263. (2) (2017) *Amer. Mineral.*, 102, 918 (abs. ref. 1).