

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . As lamellar {100} crystals, elongated on [001], dominated by {100} with {110}, curved {010} common, {211} uncommon, to 3 cm; typically as jackstraw or booklike radial aggregates intergrown about [001].

**Physical Properties:** *Cleavage:* {100} and {010}, good. *Tenacity:* Brittle. Hardness = 3.5–4 D(meas.) = 4.26(5) D(calc.) = 4.279

**Optical Properties:** Transparent to translucent. *Color:* Dark green. *Streak:* Malachite-green. *Luster:* Adamantine.

*Optical Class:* Biaxial (+). *Pleochroism:* X = yellow-green; Y = Z = green. *Orientation:* X = b; Y = a; Z = c. *Dispersion:*  $r > v$ , strong.  $\alpha = > 1.8$   $\beta = > 1.8$   $\gamma = > 1.8$  2V(meas.) = 74(3)°

**Cell Data:** *Space Group:*  $Pn\bar{m}$ .  $a = 8.5201(8)$   $b = 12.545(1)$   $c = 6.0794(6)$   $Z = 4$

**X-ray Powder Pattern:** Jardinera No. 1 mine, Chile.

2.591 (vs), 5.471 (s), 3.754 (s), 3.043 (s), 1.519 (s), 4.599 (m), 2.759 (m), 2.415 (m)

**Chemistry:**

	(1)	(2)
MoO <sub>3</sub>	34.00	34.38
Al <sub>2</sub> O <sub>3</sub>	0.14	
CuO	56.26	57.01
H <sub>2</sub> O	8.79	8.61
Total	99.19	100.00

(1) Jardinera No. 1 mine, Chile; by electron microprobe, average of 20 analyses; H<sub>2</sub>O by LOI, MoO<sub>4</sub><sup>2-</sup> and OH<sup>-</sup> confirmed by IR; corresponds to Cu<sub>2.97</sub>Al<sub>0.01</sub>(MoO<sub>4</sub>)<sub>0.99</sub>(OH)<sub>4.09</sub>.

(2) Cu<sub>3</sub>(MoO<sub>4</sub>)(OH)<sub>4</sub>.

**Occurrence:** A uncommon secondary mineral in the oxidized zone of a copper–molybdenum deposit in granite.

**Association:** Powellite, chrysocolla, brochantite, lindgrenite, gold, molybdenite, chalcocite, hematite, barite, quartz.

**Distribution:** From the Jardinera No. 1 mine, five km east of Inca de Oro, Atacama, Chile.

**Name:** Honors husband and wife Marissa Szenics (1950–) and Terry Szenics (1947–), mineral collectors and dealers who found the first specimens.

**Type Material:** Harvard University, Cambridge, Massachusetts, USA, 133734, 133735, 133738, 133739.

**References:** (1) Francis, C.A., L.C. Pitman, and D.E. Lange (1997) Szenicsite, a new copper molybdate from Inca de Oro, Atacama, Chile. *Mineral. Record*, 28, 387–394. (2) (1998) *Amer. Mineral.*, 83, 403 (abs. ref. 1). (3) Burns, P.C. (1998) The crystal structure of szenicsite, Cu<sub>3</sub>MoO<sub>4</sub>(OH)<sub>4</sub>. *Mineral. Mag.*, 62, 461–469.