

**Crystal Data:** Isometric. *Point Group:*  $\bar{4} 3m$ . As equidimensional grains, to 50  $\mu\text{m}$ , included in tennantite surrounded by discontinuous rims of chalcopyrite.

**Physical Properties:** *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d.  
Hardness = 'Greater than' tennantite. D(meas.) = n.d. D(calc.) = 4.343

**Optical Properties:** Opaque. *Color:* Dark gray; burgundy brown with a faint violet hue in reflected light. *Streak:* n.d. *Luster:* Metallic.

*Optical Class:* Isotropic.

$R_1$ - $R_2$ : (470) 6.77-18.27, (546) 7.91-20.10, (589) 8.96 -21.74, (650) 10.44-23.94

**Cell Data:** *Space Group:*  $F\bar{4} 3m$ .  $a = 5.368(1)$   $Z = 4$

**X-ray Powder Pattern:** Synthetic (Cu,Fe,Ga,In,Zn)S.

3.096 (100), 1.897 (60), 1.620 (40), 2.684 (20), 1.097 (15), 1.344 (10), 1.231 (10)

<b>Chemistry:</b>	(1)
S	30.77
Cu	33.61
Ga	13.31
In	9.48
Zn	5.74
Fe	6.82
Ge	0.06
As	0.06
<u>Sb</u>	<u>0.06</u>
Total	99.91

(1) Nueva Esperanza vein, Capillitas mine, Farallón Negro district, northwestern Argentina; average of 22 electron microprobe analyses; corresponding to  $(\text{Cu}_{0.55}\text{Ga}_{0.19}\text{Fe}_{0.13}\text{In}_{0.08}\text{Zn}_{0.08})_{\Sigma=1.03}\text{S}_{0.97}$ .

**Occurrence:** In an epithermal precious- and base-metal vein deposit.

**Association:** Tennantite, chalcopyrite, sphalerite, pyrite, galena, quartz.

**Distribution:** From the Nueva Esperanza vein, Capillitas mine, Farallón Negro district, eastern slope of the Capillitas Range, Catamarca province, northwestern Argentina.

**Name:** Honors Dr. Shunso Ishihara (b. 1934), Emeritus Advisor of AIST (Advanced Industrial Science and Technology), Tsukuba, Japan, for his wide contributions to the geological sciences.

**Type Material:** 'Alfred Stelzner' Mineralogical Museum, Faculty of Exact, Physical and Natural Sciences, National University of Córdoba, Argentina (MS003280).

**References:** (1) Márquez-Zavalía, M.F., M.Á. Galliski, M. Drábek, A. Vymazalová, Y. Watanabe, H. Murakami, and H.-J. Bernhardt (2014) Ishiharaite,  $(\text{Cu,Ga,Fe,In,Zn})\text{S}$ , a new mineral from the Capillitas Mine, Northwestern Argentina. *Can. Mineral.*, 52(6), 969-980. (2) (2016) Amer. Mineral., 101, 1494 (abs. ref. 1).