

Crystal Data: Tetragonal. *Point Group:* $\bar{4}2m$ or $\bar{4}$. As irregular grains, to 0.5 mm, intergrown with other minerals. *Twinning:* Polysynthetic.

Physical Properties: Hardness = n.d. VHN = 170–251 (25 g load). D(meas.) = n.d. D(calc.) = 4.822

Optical Properties: Opaque. *Color:* Brownish gray in reflected light, with red internal reflections. *Luster:* Metallic. *Anisotropism:* Strong, from brick-red to pale green.

R₁–R₂: (400) 23.9–24.4, (420) 23.4–24.0, (440) 22.9–23.6, (460) 22.6–23.4, (480) 22.4–23.2, (500) 22.3–23.0, (520) 22.2–23.0, (540) 22.2–23.0, (560) 22.2–23.0, (580) 22.3–23.2, (600) 22.5–23.3, (620) 22.6–23.3, (640) 22.8–22.8, (660) 22.6–22.2, (680) 22.0–21.7, (700) 21.5–21.4

Cell Data: *Space Group:* $I\bar{4}2m$ or $I\bar{4}$. $a = 5.786(4)$ $c = 10.829(6)$ $Z = 2$

X-ray Powder Pattern: Pirquitas deposit, Argentina.

3.267 (100), 1.976 (80), 1.735 (80), 2.049 (60), 2.901 (40), 1.289 (40), 1.165 (40)

Chemistry:

	(1)	(2)	(3)
Ag	39.72	39.6	40.85
Cu	0.06	1.5	
Zn	11.40	6.7	12.38
Fe	1.31	4.8	
Sn	23.12	23.0	22.48
S	24.42	24.0	24.29
Total	100.03	99.6	100.00

(1) Pirquitas deposit, Argentina; by electron microprobe, corresponding to (Ag_{1.93}Cu_{0.01})_{Σ=1.94} (Zn_{0.92}Fe_{0.12})_{Σ=1.04}Sn_{1.02}S_{4.00}. (2) Do.; by electron microprobe, corresponding to (Ag_{1.96}Cu_{0.13})_{Σ=2.09} (Zn_{0.55}Fe_{0.46})_{Σ=1.01}Sn_{1.04}S_{4.00}. (3) Ag₂ZnSnS₄.

Polymorphism & Series: Forms a series with hocartite.

Mineral Group: Stannite group.

Occurrence: As hydrothermal mineralization in veins associated with subvolcanic environments, similar to the classic Bolivian tin and silver deposits (Pirquitas deposit, Argentina).

Association: Hocartite, pyrite, marcasite, wurtzite, franckeite, miargyrite, aramayoite, chalcostibite, stannite, kesterite, rhodostannite, cassiterite (Pirquitas deposit, Argentina).

Distribution: From the Pirquitas deposit, Rinconada Department, Jujuy Province, Argentina [TL]. At the Toyoha mine, Hokkaido, Japan.

Name: For the type locality at the Pirquitas deposit in Argentina.

Type Material: National School of Mines, Paris, France.

References: (1) Johan, Z. and P. Picot (1982) La pirquitasite, Ag₂ZnSnS₄, un nouveau membre du groupe de la stannite. Bull. Minéral., 105, 229–235 (in French with English abs.). (2) (1983) Amer. Mineral., 68, 1249 (abs. ref. 1). (3) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 437.