

Crystal Data: Monoclinic, pseudohexagonal. *Point Group:* 2/m. As thick tabular pseudohexagonal prisms, some have rough pyramidal terminations {011}. *Twinning:* Pseudohexagonal twins common || [001] by interpenetration of {120}; lamellar twinning is also present.

Physical Properties: *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = 3.5-4
VHN = 225-242 (100 g load). D(meas.) = 4.25 D(calc.) = 4.243

Optical Properties: Opaque. *Color:* Bright gray-white when fresh, commonly tarnished iridescent in greens, blues, yellows, purples, and browns; grayish to yellowish white in reflected light.
Luster: Metallic. *Anisotropism:* Strong, deep blue to pale blue-gray.
R₁-R₂: (400) 20.5-29.4, (420) 21.6-30.2, (440) 22.7-30.8, (460) 23.8-31.6, (480) 24.6-32.2, (500) 25.3-32.8, (520) 25.8-33.5, (540) 26.3-34.1, (560) 26.8-34.8, (580) 27.4-35.6, (600) 28.1-36.3, (620) 28.7-36.9, (640) 29.4-37.5, (660) 30.0-38.0, (680) 30.4-38.4, (700) 30.9-38.7

Cell Data: *Space Group:* P112₁/n (non-standard setting).
a = 6.6902(2) b = 11.4497(4) c = 6.4525(2) γ = 90.2420(8)° Z = 4

X-ray Powder Pattern: Měděnec, Czech Republic.
3.320 (10), 3.316 (9), 1.807 (7), 5.746 (5), 3.104 (5), 1.927 (5), 3.603 (4)

Chemistry:	(1)	(2)	(3)
Ag	32.89	34.55	34.17
Fe	35.89	35.03	35.37
Cu	0.19	0.17	
As		0.05	
S	30.71	30.15	30.46
Total	99.68	99.95	100.00

(1) St. Andreasberg, Germany. (2) Měděnec, Czech Republic; by electron microprobe, corresponding to Ag_{1.02}Cu_{0.01}Fe_{2.00}S_{3.00}. (3) AgFe₂S₃.

Polymorphism & Series: Dimorphous with sternbergite.

Occurrence: Rare in silver-bearing hydrothermal veins.

Association: Arsenic, proustite, pyrrargyrite, pyrostilpnite, xanthoconite, sternbergite, stephanite, pyrite, nickel-skutterudite, dolomite, calcite, quartz.

Distribution: In the Czech Republic, at Jáchymov (Joachimsthal) [TL], Příbram, and in the Krušné hory Mountains, at Měděnec. From St. Andreasberg, Harz Mountains; Marienberg, Schneeberg, Johanngeorgenstadt, and Freiberg, Saxony; and at the Anton mine, Wieden, Black Forest, Germany. At the Tynebottom mine, Garrigill, near Alston, Cumbria, England. From Broken Hill, New South Wales, Australia. In the Omidani mine, Hyogo Prefecture, Japan. At Colquechaca, Potosí, Bolivia. In the Silvana mine, Sandon, British Columbia, Canada.

Name: Prefix, *argento*, for its essential silver content and physical similarity to *pyrite*.

Type Material: Royal Ontario Museum, Toronto, Canada, M13001.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 248. (2) Murdoch, J. and L.G. Berry (1954) X-ray measurements on argentopyrite. *Amer. Mineral.*, 39, 475-485. (3) Czamanske, G.K. and R.R. Larsen (1969) The chemical identity and formula of argentopyrite and sternbergite. *Amer. Mineral.*, 54, 1198-1201. (4) Šrein, V., T. Řídkošil, P. Kašpar, and J. Šourek (1986) Argentopyrite and sternbergite from polymetallic veins of the skarn deposit Měděnec, Krušné hory Mts., Czechoslovakia. *Neues Jahrb. Mineral., Abh.*, 154, 207-222. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed., Chapman & Hall, London, 17. (6) Yang, H., W.W. Pinch, and R.T. Downs (2009) Crystal structure of argentopyrite, AgFe₂S₃, and its relationship with cubanite. *Amer. Mineral.*, 94, 1727-1730.