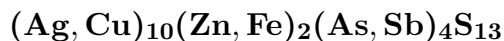


Argentotennantite



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Crystal Data: Cubic. *Point Group:* $[\bar{4}3m]$ (by analogy to tetrahedrite–tennantite). As small grains, to 0.1 mm; and surrounding tennantite.

Physical Properties: *Fracture:* Conchoidal. Hardness = 3.4 VHN = 285–320, 305 average. D(meas.) = n.d. D(calc.) = 5.05

Optical Properties: Opaque. *Color:* Gray-blue; pale gray to greenish gray with a faint bluish tint in polished section. *Streak:* Reddish brown to black. *Luster:* Resinous.

R: (400) 30.9, (420) 30.9, (440) 30.8, (460) 30.7, (480) 30.5, (500) 30.4, (520) 30.4, (540) 30.4, (560) 30.4, (580) 30.3, (600) 29.9, (620) 29.4, (640) 28.8, (660) 28.4, (680) 28.2, (700) 27.8

Cell Data: *Space Group:* $[I\bar{4}3m]$ (by analogy to tetrahedrite–tennantite). $a = 10.584(3)$. $Z = [2]$

X-ray Powder Pattern: Kvarstsitoye Gorki deposit, Kazakhstan.

3.06 (100), 1.869 (80), 1.595 (40), 2.65 (30), 2.073 (20), 1.230 (20), 1.214 (20)

Chemistry:

	(1)	(2)
Ag	33.54	22.5
Cu	15.60	22.6
Fe	1.13	2.83
Zn	5.44	4.22
Pb	0.18	
Cd	0.10	
Sb	12.59	14.7
As	8.80	9.1
S	22.66	22.9
Total	100.04	99.85

(1) Kvarstsitoye Gorki deposit, Kazakhstan; by electron microprobe, corresponding to $(\text{Ag}_{5.67}\text{Cu}_{4.48})_{\Sigma=10.15}(\text{Zn}_{1.52}\text{Fe}_{0.37}\text{Pb}_{0.01}\text{Cd}_{0.01})_{\Sigma=1.91}(\text{As}_{2.14}\text{Sb}_{1.89})_{\Sigma=4.03}\text{S}_{12.90}$.

(2) Silvermines, Ireland; by electron microprobe, corresponding to $(\text{Cu}_{6.32}\text{Ag}_{3.70})_{\Sigma=10.02}(\text{Zn}_{1.15}\text{Fe}_{0.90})_{\Sigma=2.05}(\text{As}_{2.15}\text{Sb}_{2.13})_{\Sigma=4.28}\text{S}_{12.66}$.

Polymorphism & Series: Forms a series with freibergite.

Mineral Group: Tetrahedrite group.

Occurrence: In a polymetallic deposit (Kvarstsitoye Gorki deposit, Kazakhstan); in a stratiform Pb–Zn orebody (Silvermines, Ireland).

Association: Tennantite–tetrahedrite, freibergite, stibnite, mercurian gold, pyrite, galena, siderite, ankerite, quartz (Kvarstsitoye Gorki deposit, Kazakhstan); geocronite, proustite–pyrargyrite, galena (Silvermines, Ireland).

Distribution: In the Kvarstsitoye Gorki [Quartzite Hills] deposit, Akmola district, northern Kazakhstan [TL]. At Silvermines, Co. Tipperary, Ireland.

Name: For the chemical composition and by analogy to tennantite.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 84396.

References: (1) Spiridonov, E.M., N.F. Sokolova, A.K. Gapeev, D.M. Dashevskaya, T.L. Evstigneeva, T.N. Chvileva, V.G. Demidov, E.P. Balashov, and V.I. Shul'ga (1986) A new mineral — argentotennantite. *Doklady Acad. Nauk SSSR*, 290, 206–210 (in Russian). (2) (1988) *Amer. Mineral.*, 73, 439 (abs. ref. 1). (3) Zakrzewski, M.A. (1989) Members of the freibergite–argentotennantite series and associated minerals from Silvermines, County Tipperary, Ireland. *Mineral. Mag.*, 53, 293–298.

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