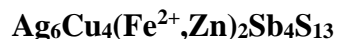


Argentotetrahedrite-(Fe)

Crystal Data: Cubic. *Point Group:* $\bar{4} 3m$. As massive material in a museum specimen.

Physical Properties: *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* n.d. *Hardness* = ~4 VHN = 296-319, 306 average (100 g load). *D(meas.)* = n.d. *D(calc.)* = n.d.

Optical Properties: n.d. *Color:* n.d. *Streak:* n.d. *Luster:* n.d.

Optical Class: n.d.

R: (400) 31.3, (420) 31.2, (440) 31.1, (460) 31.0, (480) 30.9, (500) 30.8, (520) 30.8, (540) 30.7, (560) 30.7, (580) 30.6, (600) 30.4, (620) 30.3, (640) 30.1, (660) 29.9, (680) 29.7, (700) 29.6

Cell Data: Space Group: $I\bar{4} 3m$. $a = 10.6116(1)$ $Z = 1$

X-ray Powder Pattern: Quasi-powder diffraction data.

3.063 (100), 1.876 (35), 2.652 (28), 1.599 (25), 2.081 (19), 1.937 (12), 2.501 (8)

Chemistry:	(1)	(2)
S	22.0	21.64
Fe	4.64	2.90
Cu	19.29	13.19
Zn	1.43	3.39
As	0.17	
Ag	25.5	33.60
<u>Sb</u>	<u>26.69</u>	<u>25.28</u>
Total	99.76	100.00

(1) From Keno Hill, Yukon, Canada; average of 21 electron microprobe analyses; corresponds to $(\text{Cu}_{5.61}\text{Ag}_{4.37})_{\Sigma=9.98}(\text{Fe}_{1.53}\text{Zn}_{0.40})_{\Sigma=1.93}(\text{Sb}_{4.05}\text{As}_{0.04})_{\Sigma=4.09}\text{S}_{12.68}$. (2) $\text{Ag}_6\text{Cu}_4\text{Fe}^{2+}\text{ZnSb}_4\text{S}_{13}$.

Mineral Group: Tetrahedrite group.

Occurrence: Found in hydrothermal veins and contact metamorphic deposits.

Association: n.d.

Distribution: From Keno Hill, Yukon, Canada.

Name: As the Sb-analogue of argentotennantite. The suffix, (Fe), indicates the dominant composition in the C structural site.

Type Material: Miller Museum, University of Western Ontario, London, Canada (M8224 and M7138) and The Natural History Museum, London, England (BM2016,101).

References: (1) Welch, M.D., C.J. Stanley, J. Spratt, and S.J. Mills (2018) Rozhdestvenskayaite $\text{Ag}_{10}\text{Zn}_2\text{Sb}_4\text{S}_{13}$ and argentotetrahedrite $\text{Ag}_6\text{Cu}_4(\text{Fe}^{2+}, \text{Zn})_2\text{Sb}_4\text{S}_{13}$: two Ag-dominant members of the tetrahedrite group. *Eur. J. Mineral.*, 30(6), 1163-1172. (2) (2019) *Amer. Mineral.*, 104(9), 1360-1361 (abs. ref. 1).