

**Crystal Data:** Monoclinic. *Point Group:* 2/m. Massive and as prismatic crystals and thin blades, to 1 mm, slightly twisted || [010], the elongation axis.

**Physical Properties:** Hardness = n.d. VHN = n.d. D(meas.) = 6.36 D(calc.) = [6.24]

**Optical Properties:** Opaque. *Color:* Gray, commonly tarnished to bluish. *Luster:* Metallic. *Anisotropism:* Distinct.

R<sub>1</sub>–R<sub>2</sub>: (400) 31.8–35.2, (420) 32.4–35.8, (440) 33.1–36.4, (460) 34.4–37.6, (480) 34.9–37.6, (500) 34.9–38.0, (520) 35.4–38.4, (540) 35.9–38.9, (560) 36.2–39.4, (580) 36.6–39.8, (600) 36.8–40.1, (620) 37.0–40.4, (640) 37.2–40.4, (660) 37.2–40.5, (680) 37.2–40.5, (700) 37.2–40.5

**Cell Data:** *Space Group:* C2/m. *a* = 17.520(1) *b* = 3.926(3) *c* = 15.261(1)  
β = 100.18(1)° *Z* = [2]

**X-ray Powder Pattern:** Hall's Valley, Colorado, USA.  
3.10 (10), 2.73 (6), 3.65 (4b), 4.31 (3), 1.961 (3), 1.719 (3), 6.24 (2)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
Cu	15.96	15.1	12.39	Bi	60.80	63.8	66.22
Ag	0.89	1.19	2.63	Sb		0.08	
Pb		0.84		Se		0.50	
Zn	0.10			Te		0.07	
Mn		0.14		S	[19.94]	18.5	18.76
Fe	2.13			Total	[99.82]	100.2	100.00

(1) Hall's Valley, Colorado, USA; analysis by Hillebrand (in 1884), who assumed the sample to contain chalcopyrite 6.97% after deducting gangue 4.43%; sulfur content "calculated for the analysis"; then corresponds to Cu<sub>9.69</sub>Ag<sub>0.32</sub>Zn<sub>0.06</sub>Bi<sub>11.23</sub>S<sub>24.00</sub>. (2) Ohio district, Utah, USA; by electron microprobe, corresponds to Cu<sub>9.77</sub>Ag<sub>0.45</sub>Pb<sub>0.17</sub>Mn<sub>0.10</sub>(Bi<sub>12.55</sub>Sb<sub>0.03</sub>)<sub>Σ=12.58</sub>(S<sub>23.72</sub>Se<sub>0.26</sub>Te<sub>0.02</sub>)<sub>Σ=24.00</sub>. (3) Cu<sub>8</sub>AgBi<sub>13</sub>S<sub>24</sub>.

**Occurrence:** Rare, of hydrothermal origin with other sulfides and sulfosalts.

**Association:** Emplectite, aikinite, wittichenite, benjaminite, berryite, cupropavonite, padëraite, hodrushite, wolframite, bismuthinite.

**Distribution:** In the USA, in Colorado, from the Missouri mine, Hall's Valley, Park Co. [TL], and at Silver Cliff, Custer Co.; in the Fairfax quarry, Centreville, Fairfax Co., Virginia; and from the Tunnel Extension 2 mine, Marysville, Ohio district, Piute Co., Utah. From Krupka, Czech Republic. At Băița (Rézbánya) and in the Paulus mine, Ocna de Fier (Morávicza; Vaskó), Romania. From Baicolliou, Switzerland.

**Name:** For copper, CUPRum, and BISMUTH in the composition.

**Type Material:** Harvard University, Cambridge, Massachusetts, 94989; National Museum of Natural History, Washington, D.C., USA, 92902.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 437. (2) Nuffield, E.W. (1952) Studies of mineral sulfo-salts: XVI Cuprobismuthite [sic]. Amer. Mineral., 37, 447–452. (3) Taylor, C.M., A.S. Radtke, and C.L. Christ (1973) New data on cuprobismutite. J. Res. U.S. Geol. Sur., 1, 99–103. (4) Ozawa, T. and W. Nowacki (1975) The crystal structure of, and the bismuth-copper distribution in synthetic cuprobismuthite [sic]. Zeits. Krist., 142, 161–176. (5) Cook, N.J. and C.L. Ciobanu (2003) Lamellar minerals of the cuprobismutite series and related padëraite: a new occurrence and implications. Can. Mineral., 41, 441–456. (6) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 143–144. (7) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 126.

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