

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As irregular aggregates intergrown with makovickyite or bismutinite derivatives to 0.5 mm.

**Physical Properties:** *Cleavage:* None. *Fracture:* Uneven. *Tenacity:* Brittle. *Hardness* = 3 VHN = 179-210 (50 g load). *D(meas.)* = n.d. *D(calc.)* = 6.42

**Optical Properties:** Opaque. *Color:* Gray, grayish white in reflected light. *Streak:* n.d. *Luster:* Metallic. *Pleochroism:* White with bluish tints. *Anisotropism:* Moderate (air) to strong (oil), dark bluish gray to yellowish brown.

*Optical Class:* n.d.

*R<sub>1</sub>-R<sub>2</sub>:* (470) 33.55-40.56, (546) 33.92-41.14, (589) 34.16-41.35, (650) 34.20-41.32

**Cell Data:** *Space Group:* C2/m. *a* = 17.512(2) *b* = 3.9103(4) *c* = 12.869(1) *β* = 108.56(1)°  
*Z* = 2

**X-ray Powder Pattern:** Felbertal scheelite deposit, Austria.

3.128 (100), 3.071 (74), 3.596 (62), 2.683 (56), 3.213 (42), 3.239 (38), 2.531 (36)

Chemistry:	(1)	(2)
Cu	13.02	16.02
Fe	2.23	0.85
Ag	0.11	0.11
Cd	0.30	
Pb		2.73
Bi	64.21	61.32
Sb	0.12	0.07
<u>S</u>	<u>20.10</u>	<u>19.59</u>
Total	100.09	100.69

(1) Felbertal scheelite deposit, Austria; average of 6 electron microprobe analyses; corresponding to (Cu<sub>3.29</sub>Fe<sub>0.64</sub>)<sub>Σ=3.93</sub>(Bi<sub>4.94</sub>Cd<sub>0.04</sub>Ag<sub>0.01</sub>Sb<sub>0.01</sub>)<sub>Σ=5.00</sub>S<sub>10.07</sub>. (2) Čierna Lehota, Slovakia; average of 14 electron microprobe analyses; corresponding to (Cu<sub>3.92</sub>Fe<sub>0.24</sub>)<sub>Σ=4.16</sub>(Bi<sub>4.60</sub>Pb<sub>0.19</sub>Ag<sub>0.04</sub>Sb<sub>0.01</sub>)<sub>Σ=4.84</sub>S<sub>9.58</sub>.

**Occurrence:** In complexly metamorphosed amphibolites (Austria). By the reaction of hodrushite with a hydrothermal solution depositing Bi-rich tennantite (Slovakia).

**Association:** Chalcopyrite, pyrrhotite, sphalerite, molybdenite, native bismuth, makovickyite, cupromakovickyite, hodrushite, cuprobismutite (Austria); hodrushite, tennantite (Slovakia).

**Distribution:** From the K7 and K8 orebodies, Felbertal scheelite deposit, Austria; and from 2 km SSE of Čierna Lehota, Western Carpathians, Slovakia.

**Name:** Honors Professor Vladimír Kupčík (1934-1990) of the University of Bratislava, Slovakia and the University of Göttingen, Germany for his contributions to the crystal chemistry of sulfosalts.

**Type Material:** Geological Institute and Geological Museum, University of Copenhagen, Denmark, and in the Mineralogical Institute, University of Salzburg, Austria (# 14933).

**References:** (1) Topa, D., E. Makovicky, T. Balić-Žunić, and W.H. Paar (2003) Kupčikite, Cu<sub>3.4</sub>Fe<sub>0.6</sub>Bi<sub>5</sub>S<sub>10</sub>, a new Cu-Bi sulfosalt from Felbertal, Austria, and its crystal structure. *Can. Mineral.*, 41, 1155-1166. (2) (2004) *Amer. Mineral.*, 89, 1829 (abs. ref. 1). (3) Pršek, J., T. Mikuš, E. Makovicky, and M. Chovan (2005) Cuprobismutite, kupčikite, hodrushite and associated sulfosalts from the black shale hosted Ni-Bi-As mineralization at Čierna Lehota, Slovakia. *Eur. J. Mineral.*, 17, 155-162.