

**Crystal Data:** Orthorhombic or hexagonal. *Point Group:*  $2/m\ 2/m\ 2/m$  or n.d. In fine grains, to 1 mm, as an intergrowth.

**Physical Properties:** Hardness =  $\sim 4$  VHN = 136–157 (25 g load). D(meas.) = 8.48 D(calc.) = 8.437

**Optical Properties:** Opaque. *Color:* In polished section, bluish gray. *Streak:* Black.

*Luster:* Metallic. *Anisotropism:* Strong.

R<sub>1</sub>–R<sub>2</sub>: (400) —, (420) —, (440) 45.9–46.4, (460) 44.6–43.4, (480) 43.0–41.4, (500) 41.5–39.2, (520) 40.0–37.6, (540) 38.9–36.0, (560) 38.0–34.5, (580) 37.6–33.4, (600) 37.2–32.2, (620) 37.4–31.4, (640) 37.6–30.7, (660) 38.0–30.3, (680) 38.5–29.9, (700) 39.2–29.8

**Cell Data:** *Space Group:* *Ibam*  $a = 5.995$   $b = 11.58$   $c = 5.49$   $Z = 4$ , or *Space Group:* n.d.  $a = 11.54$   $c = 14.36$   $Z = 18$

**X-ray Powder Pattern:** Černý Důl mine, Czech Republic (orthorhombic). 2.078 (10), 2.024 (10), 1.994 (10), 1.147 (9), 1.324 (8), 1.197 (8), 1.178 (8)

**X-ray Powder Pattern:** Daluis, France (hexagonal-7C). 2.090 (FFF), 2.020 (FFF), 1.998 (FFF), 2.45 (mF), 2.16 (mf), 1.791 (f), 1.750 (f)

Chemistry:	(1)	(2)	(3)
Cu	68.2	67.98	67.95
Fe		0.10	
As	32.5	31.69	32.05
Total	100.7	99.77	100.00

(1) Daluis, France; by electron microprobe. (2) Wasserfall, France; by electron microprobe. (3) Cu<sub>5</sub>As<sub>2</sub>.

**Occurrence:** In arsenical copper deposits.

**Association:** Paxite, arsenic, silver, skutterudite, nickeline, löllingite, chalcocite, algonite, domeykite, allargentum, kutinaite, calcite.

**Distribution:** From the Černý Důl mine, Krkonoše (Giant Mountains), Czech Republic [TL]. In France, at Daluis, Alpes-Maritimes; Lautaret, Hautes-Alpes; and Wasserfall, about 20 km northwest of Belfort, Haute-Saône. From Långban, and at the Harstigen mine, near Persberg, Värmland, Sweden. From the Talmessi and Meskani deposits, Anarak district, Iran. In India, at Romehra, Himachal Pradesh. From Mohawk, Keeweenaw Co., Michigan, USA. Also noted from ill-defined localities in Israel and Kazakhstan.

**Name:** For Jaromir Koutek (1902–1983), Professor of Economic Geology, Charles University, Prague, Czech Republic.

**Type Material:** Charles University, Prague, Czech Republic, 18269; National Museum of Natural History, Washington, D.C., USA, 162605.

**References:** (1) Johan, Z. (1958) Koutekite; a new mineral. *Nature*, 181, 1553–1554. (2) (1958) *Amer. Mineral.*, 43, 794 (abs. ref. 1). (3) Johan, Z. (1960) Koutekite – Cu<sub>5</sub>As, ein neues Mineral. *Chem. Erde*, 20, 217–226 (in German). (4) (1961) *Amer. Mineral.*, 46, 467 (abs. ref. 3). (5) Picot, P. and J. Vernet (1967) Un nouveau gisement de koutekite: Le dôme du Barrot (Alpes Maritimes). *Bull. Soc. fr. Minéral.*, 60, 82–89 (in French). (6) Picot, P. and F. Ruhlmann (1978) Présence d'arséniures de cuivre de haute température dans le granite des Ballons (Vosges méridionales). *Bull. Minéral.*, 101, 563–569 (in French with English abs.). (7) Makovicky, M. and Z. Johan (1978) Reflectivity and microhardness of synthetic and natural koutekite, kutinaite and beta-domeykite. *Neues Jahrb. Mineral., Monatsh.*, 421–432. (8) Liebisch, W. and K. Schubert (1971) Zur Struktur der Mischung Kupfer-Arsen. 23, 231–236 (in German).

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