Koutekite Cu_5As_2

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 = ∼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_1–R_2: (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_5As_2.

Occurrence: In arsenical copper deposits.

Association: Paxite, arsenic, silver, skutterudite, nickeline, löllingite, chalcocite, algodonite, domeykite, allargentum, kutínaite, 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.

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

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