

Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$. Crystals elongated || [001]; thick tabular {001} and {110}; {001} striated || [010], to 3 cm; also massive. *Twinning:* Common with twin plane {110}, in pairs, also as fourlings and sixlings; then pseudohexagonal.

Physical Properties: *Cleavage:* Parting on {110} and {1 $\bar{3}$ 0}. *Fracture:* Conchoidal. Hardness = 3.5 VHN = n.d. D(meas.) = 4.03–4.18 D(calc.) = 4.024 Strongly magnetic.

Optical Properties: Opaque. *Color:* Brass-yellow to bronze-yellow. *Anisotropism:* On polished surface, distinctive.

R₁–R₂: (400) 17.5–23.1, (420) 21.5–27.0, (440) 25.2–30.2, (460) 27.7–33.1, (480) 29.8–35.1, (500) 31.7–36.7, (520) 33.3–38.1, (540) 34.8–39.0, (560) 36.0–39.8, (580) 37.1–40.4, (600) 38.1–41.0, (620) 39.1–41.6, (640) 40.0–42.2, (660) 40.9–42.8, (680) 41.7–43.3, (700) 42.3–43.7

Cell Data: *Space Group:* $Pcmn$. $a = 6.467(1)$ $b = 11.117(6)$ $c = 6.231(2)$ $Z = 4$

X-ray Powder Pattern: Sudbury, Canada.

3.22 (10), 1.867 (8), 1.750 (7), 1.165 (5), 3.49 (4), 3.00 (4), 2.79 (4)

Chemistry:

	(1)	(2)	(3)
Cu	24.32	23.52	23.42
Fe	41.15	41.14	41.15
S	34.37	35.30	35.43
Total	99.84	99.96	100.00

(1) Barracanao, Cuba. (2) Prince William Sound, Alaska, USA. (3) CuFe₂S₃.

Polymorphism & Series: Dimorphous with isocubanite.

Occurrence: In hydrothermal deposits formed at relatively high temperature, in pyrrhotite–pentlandite ores in which it commonly occurs as intimate oriented intergrowths with chalcopyrite. Cubanite may exsolve from chalcopyrite below about 200 °C–210 °C. A rare constituent of some carbonaceous chondrite meteorites.

Association: Chalcopyrite, pyrite, pyrrhotite, pentlandite, sphalerite.

Distribution: Numerous localities; may be an important ore mineral. From Barracanao, Cuba [TL]. In the USA, at Fierro, Grant Co., New Mexico; at the Christmas mine, Gila Co., Arizona; from Prince William Sound, Alaska. In the Strathcona mine, Sudbury, Ontario; as exceptional crystals from Chibougamau, Quebec, Canada. In Sweden, at Tunaberg, Södermanland; from Kaveltorp, near Ljusnarsberg, Örebro; at Kalkugnstorp, 70 km west of Stockholm. From Virtasalm, Finland. At Traversella, Piedmont, Italy. In Brazil, in the Morro Velho gold mine, Nova Lima, Minas Gerais. At Broken Hill, New South Wales, Australia. From the Noril'sk region, western Siberia, Russia. In the Orgueil and Alais carbonaceous chondrite meteorites.

Name: For its occurrence in Cuba.

Type Material: Mining Academy, Freiberg, Germany, 5467.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 243–246. (2) Cabri, L.J., S.R. Hall, J.T. Szymanski, and J.M. Stewart (1973) On the transformation of cubanite. *Can. Mineral.*, 12, 33–38. (3) Szymański, J.T. (1974) A refinement of the structure of cubanite, CuFe₂S₃. *Zeits. Krist.*, 140, 218–239. (4) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. *Geol. Soc. Amer. Mem.* 85, 65–66. (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 122.

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