Lautite CuAsS

Crystal Data: Orthorhombic. *Point Group:* $mm2$. As crystals, short to long prismatic [100], to 2.3 cm, and tabular [001]; striated on {001} parallel to [100]. May also be massive, fine granular or radiating. *Twinning:* On {110}.

Physical Properties: *Cleavage:* {001}. *Tenacity:* Brittle. Hardness = 3–3.5 VHN = 239–259 (100 g load). D(meas.) = 4.91 D(calc.) = 4.878

Optical Properties: Opaque. *Color:* Black, steel-gray with reddish tone. *Streak:* Black. *Luster:* Metallic to semimetallic. *Pleochroism:* Very weak. *Anisotropism:* Weak.
R_1–R_2: (400) 34.2–36.6, (420) 33.6–35.8, (440) 33.0–35.0, (460) 32.1–33.9, (480) 31.5–33.1, (500) 30.9–32.5, (520) 30.6–31.9, (540) 30.5–31.4, (560) 30.6–31.0, (580) 30.6–30.8, (600) 30.8–30.8, (620) 31.0–31.1, (640) 31.5–31.4, (660) 31.8–31.4, (680) 31.9–31.2, (700) 31.6–31.0

Cell Data: *Space Group:* $Pna2_1$. $a = 11.350$ $b = 5.456$ $c = 3.749$ Z = 4

X-ray Powder Pattern: Lauta, Germany.
3.10 (100), 1.903 (80), 1.610 (60), 1.232 (50), 1.095 (50), 1.030 (50), 1.797 (40)

Chemistry:

	(1)	(2)	(3)
Cu	36.10	37.6	37.28
As	45.66	43.5	43.92
S	17.88	18.8	18.80
Total	99.64	99.9	100.00

(1) Lauta, Germany. (2) Do.; by electron microprobe. (3) CuAsS.

Occurrence: In hydrothermal veins formed at medium temperatures.

Association: Arsenic, tennantite, proustite, chalcopyrite, galena, barite (Lauta, Germany); kutínaite, paxite (Niederbeerbach, Germany); arsenic, bismuth, tennantite, löllingite, rammelsbergite, proustite, quartz (Gabe Gottes mine, France).

Distribution: In Germany, from Lauta, near Marienberg, Saxony [TL]; and at Mühltal, Niederbeerbach, Odenwald, Hesse. In the Gabe-Gottes mine, Rauenthal, near Sainte-Marie-aux-Mines, Haut-Rhin, France. From Turţ, Romania. At the Laerma Au–Cu–U deposit, Sichuan Province, China.

Name: For the Lauta, Germany occurrence.

Type Material: Mining Academy, Freiberg, Germany, 44485.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 327–328. (2) Craig, D.C. and N.C. Stevenson (1965) The crystal structure of lautite, CuAsS. Acta Cryst., 19, 543–547. (3) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 108–109. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 316.