

Crystal Data: Hexagonal. *Point Group:* 32. Rhombohedral crystals, to 10 cm; thick tabular {0001}; stout to slender prismatic || [10 $\bar{1}$ 0]. Also as incrustations, granular, and massive. *Twinning:* Twin plane {0001}, twin axis [0001], to form simple contact twins.

Physical Properties: *Cleavage:* {10 $\bar{1}$ 0}, perfect. *Fracture:* Subconchoidal, uneven. *Tenacity:* Slightly sectile. Hardness = 2–2.5 VHN = 82–156 (10 g load). D(meas.) = 8.176 D(calc.) = 8.20

Optical Properties: Transparent in thin pieces. *Color:* Cochineal-red, towards brownish red and lead-gray. *Streak:* Scarlet. *Luster:* Adamantine, inclining to metallic when dark; dull in friable material.

Optical Class: Uniaxial (+). $\omega = 2.905$ (598.5). $\epsilon = 3.256$ (598.5). *Anisotropism:* High. R_1 – R_2 : (400) 30.0–33.5, (420) 28.8–32.1, (440) 27.4–30.9, (460) 26.4–29.9, (480) 25.7–29.5, (500) 25.2–29.4, (520) 24.6–29.4, (540) 24.2–29.1, (560) 23.9–28.6, (580) 23.7–27.9, (600) 23.4–27.3, (620) 23.0–26.8, (640) 22.6–26.3, (660) 22.4–26.0, (680) 22.1–25.7, (700) 21.9–25.5

Cell Data: *Space Group:* $P3_121$ or $P3_221$. $a = 4.145(2)$ $c = 9.496(2)$ $Z = 3$

X-ray Powder Pattern: Almadén, Spain.
2.85 (10), 3.34 (9), 1.672 (6), 2.06 (5), 1.969 (5), 1.725 (5), 1.339 (5)

Chemistry: Essentially pure HgS.

Polymorphism & Series: Trimorphous with metacinnabar and hypercinnabar.

Occurrence: Formed from low-temperature hydrothermal solutions in veins, and in sedimentary, igneous, and metamorphic host rocks.

Association: Mercury, realgar, pyrite, marcasite, stibnite, “opal”, “chalcedony”, barite, dolomite, calcite.

Distribution: The most common ore of mercury world-wide, so only a few localities for exceptionally abundant or well-crystallized material can be mentioned. In the USA, in California, notably at New Almaden, Santa Clara Co. and New Idria, San Benito Co.; in Texas, at Terlingua, Brewster Co.; in Nevada, at the Cahill mine, Poverty Peak district, Humboldt Co., and near Lovelock, Pershing Co. At Charcas, San Luis Potosí, Mexico. In Spain, from Almadén, Ciudad Real Province, and Mieres, Asturias. At Hydercahn, in the Fergana basin, Kazakhstan. From Tongrin, Wanshanchang, and elsewhere in Guizhou Province, and in exceptional twinned crystals from the Tsar Tien mine, Hunan Province, China. As fine crystals at Mount Avala, near Belgrade, Serbia. From Idrija (Idria), Slovenia.

Name: From the Medieval Latin *cinnabaris*, traceable to the Persian *zinjifrah*, apparently meaning *dragon's blood*, for the red color.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 251–255. (2) Auvray, P. and F. Genet (1973) Affinement de la structure cristalline du cinabre α -HgS. Bull. Soc. fr. Minéral., 96, 218–219 (in French). (3) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 69. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 99.