

Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$. Crystals prismatic, to 8 cm; commonly rhombohedral with dominant $\{01\bar{1}2\}$ or $\{10\bar{1}1\}$; also scalenohedral with prominent $\{12\bar{3}1\}$; massive, compact. *Twining:* On $\{10\bar{1}4\}$ to produce trillings; also common on $\{10\bar{1}1\}$ and on $\{0001\}$, $\{01\bar{1}2\}$.

Physical Properties: *Cleavage:* Distinct on $\{10\bar{1}1\}$. *Fracture:* Conchoidal to uneven. *Tenacity:* Brittle. Hardness = 2–2.5 VHN = 70–105 (25 g load). D(meas.) = 5.57 D(calc.) = 5.625

Optical Properties: Translucent, darkens with exposure to light. *Color:* Scarlet-vermilion. *Streak:* Vermilion. *Luster:* Adamantine.

Optical Class: Uniaxial (-). *Pleochroism:* Moderate; cochineal-red to blood-red. $\omega = 3.0877$ $\epsilon = 2.7924$ *Anisotropism:* Strong.

R₁–R₂: (400) 36.9–39.6, (420) 36.8–39.5, (440) 36.7–39.4, (460) 35.8–38.2, (480) 34.0–36.8, (500) 32.5–35.0, (520) 31.2–33.5, (540) 30.0–32.3, (560) 29.0–31.2, (580) 28.2–30.3, (600) 27.5–29.6, (620) 26.9–29.0, (640) 26.3–28.5, (660) 25.9–28.2, (680) 25.4–27.9, (700) 25.0–27.6

Cell Data: *Space Group:* R3c. $a = 10.79$ $c = 8.69$ $Z = 6$

X-ray Powder Pattern: Cobalt, Canada.

2.76 (10), 3.28 (8), 3.18 (8), 2.56 (8), 2.48 (8), 1.929 (2), 1.672 (2)

Chemistry:

	(1)	(2)	(3)
Ag	64.12	64.65	65.42
Sb	0.08	trace	
As	15.90	15.25	15.14
S	19.28	20.18	19.44
rem.	0.75	0.70	
Total	100.13	100.78	100.00

(1) Cobalt, Canada; remainder Fe 0.25%, (Co,Ni) 0.12%, insoluble 0.38%. (2) Veta Rica mine, Coahuila, Mexico; remainder is Cu. (3) Ag₃AsS₃.

Polymorphism & Series: Dimorphous with xanthoconite.

Occurrence: A late-forming mineral in hydrothermal deposits, in the oxidized and enriched zone, associated with other silver minerals and sulfides.

Association: Silver, arsenic, xanthoconite, stephanite, acanthite, tetrahedrite, chlorargyrite.

Distribution: Occurs at many localities, but rarely in fine crystals or as an important ore mineral. From Germany, in the Himmelsfürst mine, Erbsdorf, near Freiberg; and at Niederschlema, Saxony. In Romania, at Săcăřimb (Nagyág). From Jáchymov (Joachimsthal) and Příbram, Czech Republic. At Sainte-Marie-aux-Mines, Haut-Rhin, France. From Sarrabus, Sardinia, Italy. In the USA, in Colorado, at Red Mountain, San Juan Co., and at Georgetown, Clear Creek Co.; in Idaho, large masses at the Poorman mine, Silver City district, Owyhee Co.; in Nevada, in the Star mine, Cherry Creek district, White Pine Co. In Canada, from the Keeley mine, South Lorrain Township, Ontario. In Chile, at Chañarcillo, south of Copiapó, Atacama, as exceptional crystals. From Mexico, at Batopilas, Chihuahua, and Sombrerete, Zacatecas.

Name: To honor Joseph Louis Proust (1754–1826), celebrated French chemist.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 366–369. (2) Toulmin, P. (1963) Proustite–pyrargyrite solid solutions. Amer. Mineral., 48, 725–736. (3) Engel, P. and W. Nowacki (1966) Die Verfeinerung der Kristallstruktur von Proustit, Ag₃AsS₃, und Pyrargyrit, Ag₃SbS₃. Neues Jahrb. Mineral., Monatsh., 181–184 (in German). (4) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 124.

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