Pyrostilpnite Ag_3SbS_3

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals tabular {010} giving flat rhombic forms; also laths by elongation ‖ [001], to 1 mm; as subparallel sheaflike aggregates. *Twinning:* On {100} with (100) as composition plane.

Physical Properties: *Fracture:* Conchoidal. *Tenacity:* Somewhat flexible in thin plates. Hardness = 2 VHN = 95–115, 107 average (100 g load). D(meas.) = 5.94 D(calc.) = 5.97

Optical Properties: Transparent. *Color:* Hyacinth-red; lemon-yellow by transmitted light. *Streak:* Yellow-orange. *Luster:* Adamantine.
Optical Class: Biaxial (+). *Orientation:* $Y = b$; $X \wedge c = 8$–$11°$. α = Very high. β = Very high. γ = Very high.
R_1–R_2: (400) 36.3–36.9, (420) 36.3–36.5, (440) 36.1–35.8, (460) 35.7–35.1, (480) 34.9–34.2, (500) 33.9–33.2, (520) 32.3–31.8, (540) 30.8–30.3, (560) 29.6–29.2, (580) 28.6–28.2, (600) 27.8–27.5, (620) 27.1–26.7, (640) 26.6–26.2, (660) 26.2–25.8, (680) 25.9–25.4, (700) 25.6–25.2

Cell Data: *Space Group:* $P2_1/c$. $a = 6.84$ $b = 15.84$ $c = 6.24$ $\beta = 117°09'$ $Z = 4$

X-ray Powder Pattern: Příbram, Czech Republic.
2.85 (100), 2.65 (50), 2.42 (50), 1.895 (50b), 1.887 (50b), 1.824 (20b), 1.813 (20b)

Chemistry:

	(1)	(2)	(3)
Ag	59.44	59.7	59.76
Sb	22.30	23.7	22.48
S	18.11	16.8	17.76
Total	99.85	100.2	100.00

(1) St. Andreasberg, Germany. (2) Do.; by electron microprobe. (3) Ag_3SbS_3.

Polymorphism & Series: Dimorphous with pyrargyrite.

Occurrence: In low-temperature hydrothermal veins as a late-stage mineral.

Association: Pyrargyrite, stephanite, acanthite, silver, miargyrite, xanthoconite, andorite, fizelyite.

Distribution: In Germany, from St. Andreasberg, Harz Mountains [TL]. At Hiendelaencina, Guadalajara Province, Spain. In the Czech Republic, from Příbram and at Třebsko. In England, at St. Teath, Cornwall. In Australia, from Broken Hill, New South Wales; and in the Long Tunnel, at Heazlewood, Tasmania. From the Kushikino mine, Kagoshima Prefecture, Japan. In the USA, in the Silver City district, Owyhee Co., Idaho; at the Bulldog mine, Creede, Mineral Co., Colorado; and from Randsburg, San Bernardino Co., California. In Canada, at Cobalt, Ontario; in the Van silver mine, near Whistler, and at the Silvana mine, Sandon, British Columbia. In Chile, from Chañarcillo, south of Copiapó, Atacama. At Cerro Rico, Potosí, Bolivia. In small amounts from other localities.

Name: From the Greek for *fire* and *shining*, in allusion to its color and luster.

Type Material: Mining Academy, Freiberg, Germany, 6200.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 369–370. (2) Peacock, M.A. (1950) Studies of mineral sulpho-salts: XV. xanthoconite and pyrostilpnite. Mineral. Mag., 29, 346–358. (3) Kutoglu, A. (1968) Die Struktur des Pyrostilpnits (Feuerblende) Ag_3SbS_3. Neues Jahrb. Mineral., Monatsh., 145–160 (in German with English abs.). (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 465. (5) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 777–778.