Baumstarkite $AgSbS_2$

Crystal Data: Triclinic. *Point Group:* $\overline{1}$. Equant crystals, to 3 mm, showing {001}, {10$\overline{1}$}, {201}, {010}, {01$\overline{1}$}, {100}. *Twinning:* Common on {001}.

Physical Properties: *Cleavage:* Perfect on {001}; less perfect on {100}. *Fracture:* Even. *Tenacity:* Sectile, somewhat flexible. Hardness = ∼2.5 VHN = 71–98, 89 average (25 g load). D(meas.) = 5.33 D(calc.) = 5.39

Optical Properties: Opaque, transparent on thin edges. *Color:* Iron-black, grayish black on fresh surfaces; deep blood-red in transmitted light, may show red internal reflections; gray to white in reflected light. *Streak:* Grayish black. *Luster:* Metallic. *Anisotropism:* Bright white to gray with a brownish tint to very dark blue; dull greenish yellow to brown to mauve to dark blue on twinned grains. *Bireflectance:* Weak to moderate; gray to white.

R_1–R_2: (400) 33.2–41.0, (420) 32.7–40.8, (440) 32.2–40.2, (460) 31.6–39.6, (480) 31.1–39.5, (500) 30.4–38.8, (520) 30.0–38.1, (540) 29.4–37.4, (560) 28.6–36.8, (580) 28.1–36.4, (600) 27.6–35.7, (620) 2.07–34.6, (640) 26.4–33.6, (660) 25.9–32.7, (680) 25.4–32.4, (700) 25.2–31.3

Cell Data: *Space Group:* $P\overline{1}$. $a = 7.766(2)$ $b = 8.322(2)$ $c = 8.814(2)$ $\alpha = 100.62(2)°$ $\beta = 104.03(2)°$ $\gamma = 90.22(2)°$ Z = 2

X-ray Powder Pattern: San Genaro mine, Peru; similar to aramayoite.
2.798 (100), 3.425 (8), 2.841 (8), 3.224 (6), 1.3994 (6), 2.013 (5), 1.971 (5)

Chemistry:

	(1)	(2)
Ag	36.3	36.72
As	0.7	
Sb	40.2	41.45
S	22.0	21.83
Total	99.4	100.00

(1) San Genaro mine, Peru; by electron microprobe, average of 22 analyses; corresponding to $Ag_{0.99}(Sb_{0.97}As_{0.03})_{\Sigma=1.00}S_{2.01}$. (2) $AgSbS_2$.

Polymorphism & Series: Trimorphous with cuboargyrite and miargyrite.

Occurrence: Of hydrothermal hypogene origin.

Association: Miargyrite, pyrargyrite, stannite, kesterite, andorite, diaphorite, robinsonite, galena, chalcopyrite, sphalerite, pyrite.

Distribution: From the San Genaro mine, Huancavelica, Peru [TL].

Name: To honor Manfred Baumstark (1954–), German mineralogist, who provided the type material.

Type Material: Mineralogical Institute, University of Salzburg, Salzburg, Austria, 14524 and 14525; The Natural History Museum, London, England, 2000,32 and 2000,33.

References: (1) Effenberger, H., W.H. Paar, D. Topa, A.J. Criddle, and M. Fleck (2002) The new mineral baumstarkite and a structural reinvestigation of aramayoite and miargyrite. Amer. Mineral., 87, 753–764.