Bonazziite β-As_4S_4

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As crystals to 0.1 mm.

Physical Properties: *Cleavage*: None. *Fracture*: Irregular. *Tenacity*: Brittle. Hardness = ~ 2.5 VHN = 70 (15 g load). D(meas.) = n.d. D(calc.) = 3.542

Optical Properties: Opaque. *Color*: Reddish orange. *Streak*: Dark orange. *Luster*: Resinous. *Optical Class*: n.d. *Pleochroism*: Orange to light red with orange-red internal reflections. *Anisotropism*: Strong, greyish to light-blue.
R_1-R_2: (471.1) 19.9-22.2, (548.3) 19.1- 21.3, (586.6) 18.8-19.7, (652.3) 17.8-18.9

Cell Data: *Space Group*: *C*2/*c*. a = 9.956(1) b = 9.308(1) c = 8.869(1) β = 102.55(2)° Z = 4

X-ray Powder Pattern: Khaidarkan Sb-Hg deposit, Osh Oblast, Kyrgyzstan.
5.74 (100), 2.86 (80), 4.10 (60), 3.12 (60), 3.92 (50), 2.95 (50), 4.86 (30)

Chemistry:	(1)	(2)
As	68.94	70.03
S	30.20	29.97
Total	99.14	100.00

(1) Khaidarkan Sb-Hg deposit, Osh Oblast, Kyrgyzstan; average of 6 electron microprobe analyses supplemented by Raman spectroscopy; corresponding to $As_{3.95}S_{4.05}$. (2) As_4S_4.

Polymorphism & Series: Polymorph of realgar and pararealgar.

Occurrence: Low-temperature hydrothermal mineral probably formed while the system had direct involvement of magmatic volatiles.

Association: Realgar, sulfur, wakabayashilite, alacránite, non-stoichiometric As_4S_{4+x} sulfides, stibnite, calcite.

Distribution: From the Khaidarkan Sb-Hg deposit, south of Fergana Valley, Alai Range, Osh Oblast, Kyrgyzstan.

Name: Honors Paola Bonazzi (b. 1960), Professor in Mineralogy, University of Florence, Italy, in recognition of her seminal contributions to the study of arsenic sulfides and their alteration by light.

Type Material: Mineralogical Collection, Museum of Natural History, University of Florence, Italy (3143/1).

References: (1) Bindi, L., G. Pratesi, M. Muniz-Miranda, M. Zoppi, L. Chelazzi, G.O. Lepore and S. Menchetti (2015) From ancient pigments to modern optoelectronic applications of arsenic sulfides: bonazziite, the natural analogue of β-As_4S_4 from Khaidarkan deposit, Kyrgyzstan. Mineral. Mag., 79(1), 121-131. (2) (2016) Amer. Mineral., 101, 1014-1015 (abs. ref. 1).