Ferdowsiite $Ag_8(Sb_5As_3)_{\Sigma=8}S_{16}$

Crystal Data: Monoclinic. *Point Group*: 2/*m*. As elongated crystals in barite, to 400 μm, as worm-like symplectites with ferroan tetrahedrite-tennantite, and sometimes envelops arsenquatrandorite.

Physical Properties: *Cleavage*: None. *Fracture*: Irregular. *Tenacity*: Brittle.
Hardness = 2.5-3 VHN = 92 (100 g load). D(meas.) = n.d. D(calc.) = 5.3

Optical Properties: Opaque. *Color*: Grayish black, grayish white in reflected light.
Streak: Dark gray. *Luster*: Metallic. *Pleochroism:* Distinct, white to gray.
Anisotropism: Distinct, dark brown to bluish gray.
Optical Class: n.d.
R_1-R_2: (470) 34.9-37.3, (546) 33.4-35.9, (589) 32.4-35.1, (650) 30.7-33.5

Cell Data: *Space Group*: $P2_1/n$. a = 8.677(2) b = 5.799(1) c = 13.839(3) β = 96.175(4)° Z = 1

X-ray Powder Pattern: Barika gold deposit, West Azerbaijan province, NW Iran.
3.205 (100), 3.225 (96), 2.7559 (90), 2.7073 (79), 2.8995 (78), 1.9401 (22), 1.9226 (22)

Chemistry:	(1)	(2)
Ag	38.81	35.70
Cu		0.31
Pb	0.76	6.87
Sb	26.06	26.55
As	10.64	7.90
Bi	0.11	
S	23.21	22.29
Total	99.59	99.62

(1) Barika gold deposit, West Azerbaijan province, NW Iran; average of 10 electron microprobe analyses; corresponding to $Ag_{7.97}Pb_{0.08}Sb_{4.75}As_{3.15}Bi_{0.01}S_{16.04}$. (2) Barika gold deposit, West Azerbaijan province, NW Iran; average of 6 electron microprobe analyses; corresponding to $Cu_{0.11}Ag_{7.63}Pb_{0.76}Sb_{5.03}As_{2.43}S_{16.03}$.

Occurrence: In barite-quartz lenses in a metamorphosed strataform volcanogenic massive sulfide deposit.

Association: Barite, ferroan tetrahedrite-tennantite, smithite, sterryite, bournonite, boulangerite, geocronite, galena, plumbian ferdowsiite, arsenquatrandorite.

Distribution: At the Barika gold deposit, 17 km East of Sardasht, West Azerbaijan province, NW Iran.

Name: Honors Ferdowsi Tousi (935-1020), the great Persian poet for his endeavors to preserve the national identity, language and heritage of his homeland.

Type Material: Natural History Museum, Vienna, Austria (N9604).

References: (1) Makovicky, E., D. Topa, H. Tajeddin, H. Putz, and G. Zagler (2013) Ferdowsiite: a new mineral from the Barika Ore Deposit, Iran. Can. Mineral., 51(5), 727-734. (2) (2015) Amer. Mineral., 100, 1650 (abs. ref. 1).