Jordanite $Pb_{14}(As,Sb)_6S_{23}$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals tabular with pseudohexagonal aspect, to 4 cm. Rarely reniform. *Twinning:* On {001} common, may be lamellar on $\{\bar{2}01\}$, rare on $\{\bar{1}01\}$ and {101}.

Physical Properties: *Cleavage:* Perfect on {010}; parting on {001}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 3 VHN = 106–141 (50 g load). D(meas.) = 6.44 D(calc.) = 6.38

Optical Properties: Opaque. *Color:* Lead-gray, commonly tarnished, iridescent. *Streak:* Black. *Luster:* Metallic.
R_1–R_2: (400) 41.8–44.6, (420) 41.0–43.7, (440) 40.2–42.8, (460) 39.7–42.2, (480) 39.3–41.8, (500) 38.9–41.4, (520) 38.5–41.0, (540) 38.1–40.7, (560) 37.8–40.3, (580) 37.5–40.0, (600) 37.3–39.6, (620) 37.1–39.2, (640) 36.7–38.6, (660) 36.3–38.0, (680) 35.8–37.6, (700) 35.3–37.1

Cell Data: *Space Group:* $P2_1/m$. $a = 8.918(1)$ $b = 31.899(4)$ $c = 8.462(1)$ $\beta = 117.79(1)°$ Z = 2

X-ray Powder Pattern: Binntal, Switzerland.
3.51 (10), 3.16 (9), 3.04 (8), 2.87 (8), 3.68 (7), 3.35 (7), 2.96 (5)

Chemistry:	(1)	(2)	(3)		(1)	(2)	(3)
Pb	69.22	72.2	70.96	Sb		2.3	
Tl		1.0		S	18.36	16.4	18.04
As	12.42	7.6	11.00	Total	[100.00]	99.5	100.00

(1) Binntal, Switzerland; recalculated to 100.00% from an original total of 99.12%. (2) Do.; by electron microprobe. (3) $Pb_{14}As_6S_{23}$.

Polymorphism & Series: Forms a series with geocronite.

Occurrence: In metamorphosed Pb–As occurrences in dolostone (Binntal, Switzerland); in low-temperature epithermal veins (Aomori Prefecture, Japan); in epithermal gold-quartz veins (Săcărîmb, Romania); from "black smoker" undersea chimneys.

Association: Tennantite, seligmannite, dufrenoysite, boulangerite, semseyite, quadratite, guettardite, zinkenite, tsugaruite, kirkiite, enargite, sphalerite, galena.

Distribution: From the Lengenbach quarry, Binntal, Valais, Switzerland [TL]. At Beuthen, Upper Silesia, Poland. In Germany, from Wiesloch, near Heidelberg, Black Forest. At Săcărîmb (Nagyág), Romania. From Horní Benešov, Czech Republic. In the Pitone and Ceragiola marble quarries, near Seravezza, Tuscany, Italy. At the Aghios Philippos Pb–Zn deposit, near Kirki, Greece. From Sulitjelma, and at the Bleikvassli Pb–Zn–Cu deposit, Nordland, Norway. At the Langdal deposit, Boliden district, Västerbotten, Sweden. In the Penberthy Croft mine, St. Hilary, Cornwall, England. In Japan, from the Yunosawa and Okoppe mines, Aomori Prefecture. In the USA, at the Zuni mine and Brobdingnag prospect, near Silverton, San Juan Co., Colorado; in the Keystone mine, Birmingham, Blair Co., Pennsylvania; and in the Balmat-Edwards mine, Balmat, St. Lawrence Co., New York. Along the East Pacific Rise (21°N) and on Axial Seamount, Juan de Fuca Ridge, northeast Pacific Ocean.

Name: Honors Dr. H. Jordan (1808–1887), of Saarbrücken, Germany, who provided the original specimens for study.

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