Zinkenite $Pb_9Sb_{22}S_{42}$

Crystal Data: Hexagonal. *Point Group:* 6. Thin prismatic with striations along [0001], to 5 cm long, also as columnar or radial fibrous to felted aggregates; massive.

Physical Properties: *Cleavage:* Indistinct on $\{11\bar{2}0\}$. *Fracture:* Uneven. Hardness = 3–3.5 VHN = n.d. D(meas.) = 5.33 D(calc.) = 5.34

Optical Properties: Opaque. *Color:* Steel-gray, may be tarnished iridescent; gray-white in reflected light. *Streak:* Steel-gray. *Luster:* Metallic. *Anisotropism:* Distinct.
R_1–R_2: (400) 39.1–44.2, (420) 39.2–44.4, (440) 39.3–44.6, (460) 39.2–44.5, (480) 39.0–44.2, (500) 38.8–43.8, (520) 38.4–43.2, (540) 37.9–42.5, (560) 37.3–41.8, (580) 36.7–41.0, (600) 36.0–40.4, (620) 35.4–39.8, (640) 34.6–39.0, (660) 34.0–38.2, (680) 33.2–37.3, (700) 32.4–36.3

Cell Data: *Space Group:* $P6_3$. $a = 44.15$ $c = 8.62$ $Z = 12$

X-ray Powder Pattern: Wolfsberg, Germany.
3.45 (100), 2.81 (40), 1.985 (30), 1.828 (30), 3.02 (20), 2.13 (20), 2.06 (20)

Chemistry:

	(1)	(2)	(3)
Pb	34.33	32.77	31.66
Cu	0.70	1.20	
Fe	0.06	0.02	
Sb	42.15	35.00	45.48
As		5.64	
S	22.63	22.50	22.86
rem.		1.58	
Total	99.87	98.71	100.00

(1) Wolfsberg, Germany. (2) Red Mountain district, Colorado, USA. (3) $Pb_9Sb_{22}S_{42}$.

Occurrence: A constituent of hydrothermal veins, associated with base metal and tin sulfides and sulfosalts.

Association: Stibnite, jamesonite, boulangerite, bournonite, plagionite, fülöppite, cassiterite, stannite, andorite, pyrite, sphalerite, chalcopyrite, arsenopyrite, galena.

Distribution: In Germany, from Wolfsberg, in the Harz Mountains; and at Aldersbach, in the Kinzigtal, Bavaria. From Săcărîmb (Nagyág) and Baia Mare (Nagybánya), Romania. At Peschadoire, near Pontgibaud, Puy-de-Dôme; Saint-Pons, Alpes-de-Haute-Provence; and Bournac, Montagne Noire, Finistère, France. Fine crystals from the San José, Itos, and other mines, Oruro, Bolivia. At the Brobdignag prospect, near Silverton, Red Mountain district, San Juan Co., Colorado; from the Morey mine, Morey district, Nye Co., and Eureka, Eureka Co., Nevada, USA. In Canada, from Bonanza Creek, Bridge River district, British Columbia; and the Yellowknife Bay area, Northwest Territories. From Carrock Fell, Cumbria, England. Known from a few additional localities.

Name: For J.K.L. Zinken (sometimes Zincken) (1798–1862), German mineralogist and mining geologist.

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