

Robinsonite

Pb₄Sb₆S₁₃

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Crystal Data: Monoclinic. *Point Group:* 2/*m*. Crystals are slender, prismatic and striated || [001], to 5 mm; fibrous to compact, intergrown with other sulfosalts; massive.

Physical Properties: *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = 2.5–3
VHN = n.d. D(meas.) = 5.64–5.75 D(calc.) = 5.743

Optical Properties: Opaque. *Color:* Bluish lead-gray. *Luster:* Metallic.
Anisotropism: Strong; in blue-gray, cream-white, and brown-gray.
R₁–R₂: n.d.

Cell Data: *Space Group:* I2/*m*. *a* = 23.642(4) *b* = 3.9761(6) *c* = 24.420(4)
β = 93.808(3)° *Z* = 4

X-ray Powder Pattern: Red Bird mine, Nevada, USA.
3.39 (100), 4.04 (80), 3.92 (80), 3.03 (80), 2.75 (80), 2.67 (80), 3.79 (60)

Chemistry:	(1)	(2)	(3)
Pb	42.6	41.76	41.94
Fe		0.01	
Cu		0.01	
Ag		0.01	
Sb	35.5	36.05	36.97
Bi		0.02	
S	20.9	21.36	21.09
Total	99.0	[99.22]	100.00

(1) Red Bird mine, Nevada, USA; by electron microprobe, corresponding to Pb_{4.10}Sb_{5.82}S_{13.00}.
(2) Malé Železné deposit, Slovakia; by electron microprobe, average of six analyses, original total given as 99.23%; corresponding to Pb_{3.93}Sb_{5.77}S_{13.00}. [??saved this spot for the chem analysis in 2004 ref??] (3) Pb₄Sb₆S₁₃.

Occurrence: A primary hydrothermal mineral with other lead sulfosalts.

Association: Zinkenite, boulangerite, semseyite, plagionite, stibnite, sphalerite, galena, pyrite, quartz, calcite.

Distribution: In the USA, in Nevada, from the Red Bird mercury mine, about 37 road km east of Lovelock, Antelope district, Pershing Co. [TL], and in the Silver Coin mine, near Valmy, Iron Point district, Humboldt Co.; at the Cleary prospect, Fairbanks district, Alaska. From Madoc, Ontario, and in the Dodger tungsten mine, Salmo, British Columbia, Canada. At Vall de Ribes, eastern Pyrenees, Spain. Large crystals from the Malé Železné and Däbrava deposits, Low Tatra Mountains, Slovakia. At the Rujevac Sb–Zn–Pb deposit, western Serbia. From Săsar, Hondol, Romania. In the Bwlch mine, Deganwy, Gwynedd, Wales. At the Pitone quarry, near Seravezza, Tuscany, Italy. Several additional localities are known.

Name: To honor Dr. Stephen Clive Robinson (1911–1981), Geological Survey of Canada, who first synthesized the mineral at Queen's University, Kingston, Ontario, Canada.

Type Material: Canadian Geological Survey, Ottawa, Canada, 12132; National Museum of Natural History, Washington, D.C., USA, 106568.

References: (1) Berry, L.G., J.J. Fahey, and E.H. Bailey (1952) Robinsonite, a new lead antimony sulfide. *Amer. Mineral.*, 37, 438–446. (2) Jambor, J.L. and A.G. Plant (1975) The composition of the lead sulphantimonide, robinsonite. *Can. Mineral.*, 13, 415–417. (3) Makovicky, E., T. Balic-Žunic, L. Karanovic, D. Poleti, and J. Pršek (2004) Structure refinement of natural robinsonite, Pb₄Sb₆S₁₃: cation distribution and modular description. *Neues Jahrb. Mineral., Monatsh.*, 49–67.

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