Rambergite MnS

Crystal Data: Monoclinic. *Point Group:* $2/m$. Crystals are long prismatic or thick lance-shaped, to 1 cm. *Twinning:* Lamellar twinning on {010}.

Physical Properties: *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 2 VHN = 206 (20 g load). D(meas.) = 5.43 D(calc.) = [5.64]

Optical Properties: Opaque. *Color:* Gray-black; in polished section, white. *Streak:* Gray-black. *Luster:* Metallic. *Pleochroism:* Very weak. *Anisotropism:* Moderate. R_1–R_2: (400) 39.3–43.1, (420) 38.8–42.8, (440) 38.3–42.5, (460) 37.8–42.2, (480) 37.4–42.0, (500) 36.9–41.6, (520) 36.5–41.2, (540) 36.0–40.9, (560) 35.7–40.5, (580) 35.3–40.2, (600) 34.8–39.7, (620) 34.4–39.2, (640) 34.0–38.7, (660) 33.4–38.0, (680) 32.8–37.3, (700) 32.0–36.4

Cell Data: *Space Group:* $P2_1/n$. $a = 19.24$ $b = 13.08$ $c = 8.73$ $\beta = 90.28°$ Z = [2]

X-ray Powder Pattern: Chocaya, Bolivia.
3.32 (100), 2.94 (60), 2.78 (50), 2.21 (50), 3.48 (30), 3.04 (30), 3.82 (20)

Chemistry:

	(1)	(2)	(3)
Ag	8.96	9.6	8.80
Pb	33.84	35.7	33.82
Sb	34.91	36.1	36.44
S	21.14	19.6	20.94
Total	98.85	101.0	100.00

(1) Chocaya, Bolivia; by electron microprobe, corresponds to $Ag_{3.02}Pb_{5.95}Sb_{10.44}S_{24.00}$. (2) Do.; by electron microprobe, average of ten analyses; corresponds to $Ag_{3.49}Pb_{6.77}Sb_{11.64}S_{24.00}$. (3) $Ag_3Pb_6Sb_{11}S_{24}$.

Occurrence: In medium- to low-temperature hydrothermal silver deposits.

Association: Sphalerite, pyrite, andorite, andorite, jamesonite, quartz (Chocaya, Bolivia); andorite (Bear Basin, Washington, USA).

Distribution: In Bolivia, from the Guadaloupe mine, Chocaya, Potosí [TL], at Oruro, and Tatasi. In the Pirquitas deposit, Riconada Department, Jujuy Province, Argentina. In the USA, at the Round Valley tungsten mine, Bishop Creek area, Inyo Co., California; and at Bear Basin, King Co., Washington. In the Zlata Bana deposit, Slanske vrchy Mountains, Slovakia. From the Fenghuangshan silver deposit, Guangxi Province, China. At the Alyaskitovoye Sn–W deposit, Sakha, Russia.

Name: Honors Professor Paul Ramdohr (1890–1985), German mineralogist, University of Berlin, Berlin, Germany, for his studies of opaque ore minerals.

Type Material: The Natural History Museum, London, England, 1931,535; Harvard University, Cambridge, Massachusetts, 98835; National Museum of Natural History, Washington, D.C., USA, R6595.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 450–451. (2) Donnay, J.D.H. and G. Donnay (1954) Syntaxic intergrowths in the andorite series. Amer. Mineral., 39, 161–171. (3) Borodaev, Y.S., O.L. Sveshnikova, and N.N. Mozgova (1971) The inhomogeneity of ramdohrite. Doklady Acad. Nauk SSSR, 199, 1138–1141 (in Russian). (4) Makovicky, E. and W.G. Mumme (1983) The crystal structure of ramdohrite, $Pb_6Sb_{11}Ag_3S_{24}$, and its implications for the andorite group and zinckenite. Neues Jahrb. Mineral., Abh., 147, 58–79. (5) Moëlo, Y., E. Makovicky, and S. Karup-Møller (1984) New data on the minerals of the andorite series. Neues Jahrb. Mineral., Monatsh., 175–182. (6) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 731–733.