

**Crystal Data:** Orthorhombic, pseudotetragonal. *Point Group:*  $2/m\ 2/m\ 2/m$ . Fine-grained, massive.

**Physical Properties:** *Cleavage:* {001}. Hardness =  $\sim 2$  VHN = n.d.  $D(\text{meas.}) = 5.22$   
 $D(\text{calc.}) = 5.19$

**Optical Properties:** Opaque. *Color:* Black; in polished section, white, with internal reflections in dark red-brown. *Streak:* Black. *Luster:* Metallic. *Pleochroism:* Very low, light to darker blue-white. *Anisotropism:* Intense in oil, with yellow to red colors.

$R_1$ – $R_2$ : (400) 45.9–52.9, (420) 45.6–53.6, (440) 45.2–53.8, (460) 44.6–53.2, (480) 44.0–52.2, (500) 43.7–51.2, (520) 43.6–50.6, (540) 43.2–49.9, (560) 42.3–48.8, (580) 41.4–47.6, (600) 40.7–46.6, (620) 40.3–45.8, (640) 40.0–45.0, (660) 39.9–44.2, (680) 39.6–43.7, (700) 39.3–43.1

**Cell Data:** *Space Group:*  $Pbnm$ .  $a = 4.3291(2)$   $b = 11.1923(4)$   $c = 3.9838(2)$   $Z = 4$

**X-ray Powder Pattern:** Synthetic.

2.835 (100), 2.931 (70), 3.244 (65), 3.423 (50), 2.797 (50), 2.305 (50), 1.9921 (50)

**Chemistry:**

	(1)	(2)
Sn	80.0	78.73
S	20.2	21.27
Total	100.2	100.00

(1) Maria-Teresa mine, Bolivia; by electron microprobe. (2) SnS.

**Occurrence:** Of hydrothermal origin, later than the deposition of cassiterite.

**Association:** Cassiterite, stannite, romarchite, ottemannite, černýite, berndtite, pyrite, chalcopyrite, sphalerite, arsenopyrite, quartz.

**Distribution:** From the Maria-Teresa mine, near Huari, between Oruro and Uyuni, Bolivia [TL]. At the Stiepelmann mine, near Arandis, Namibia. From Shinkiura and in the Hoei tin mine, Oita Prefecture, Japan. In Russia, from the Goluboye deposit, Primorskiy Krai; at the Baimka placer deposit, western Chukotka; and in the Druzhba deposit, Sakha. In Sweden, from Järkvissle, 55 km northwest of Sundsvall, Västernorrland, and at Björkskogsnaes, Hällefors. In the Barquilla deposit, Salamanca Province, Spain.

**Name:** To honor Robert Herzenberg (1885–1956), Latvian–German chemist of Oruro, Bolivia.

**Type Material:** The Natural History Museum, London, England, 1933,93; Harvard University, Cambridge, Massachusetts, USA, 92713.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 259–260. (2) Del Bucchia, S., J.-C. Jumas, and M. Maurin (1981) Contribution à l'étude de composés sulfurés d'étain(II): affinement de la structure de SnS. *Acta Cryst.*, 37, 1903–1905 (in French with English abs.). (3) Sugaki, A., A. Kitakaze, and H. Kitazawa (1985) Synthesized tin and tin-silver sulfide minerals. Synthetic sulfide minerals (XII). *Sci. Rep. Tohoku Univ.*, 16, 199–211. [??X-ray or use ICDD 39-354??] (4) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 659–660. [ck latest??] (5) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 236.