

**Crystal Data:** Orthorhombic. *Point Group:*  $2/m\ 2/m\ 2/m$ . Crystals lathlike, elongated [001], flattened {100}, may be needlelike [001], and as very thin plates, to 1 cm. Commonly crystalline, massive, indistinctly columnar to fibrous.

**Physical Properties:** *Cleavage:* Good on {110}. *Tenacity:* Flexible. Hardness = 2.5–3.5 VHN = 142–194 (100 g load). D(meas.) = 7.04 D(calc.) = 7.195

**Optical Properties:** Opaque. *Color:* Pale gray to tin-white or lead-gray, may tarnish yellow or iridescent. *Streak:* Black. *Luster:* Metallic. *Anisotropism:* Strong.

$R_1$ – $R_2$ : (400) 48.0–51.1, (420) 47.9–51.1, (440) 47.8–51.1, (460) 47.7–51.0, (480) 47.5–50.8, (500) 47.1–50.5, (520) 46.6–49.8, (540) 45.9–48.8, (560) 45.3–48.2, (580) 44.8–47.7, (600) 44.6–47.2, (620) 44.4–46.8, (640) 44.4–46.7, (660) 44.4–46.7, (680) 44.5–46.8, (700) 44.7–47.1

**Cell Data:** *Space Group:*  $Pnam$ .  $a = 11.669$   $b = 14.533$   $c = 4.090$   $Z = 4$

**X-ray Powder Pattern:** Cariboo mine, Canada.

3.45 (10), 1.961 (5), 3.03 (4), 2.46 (4), 2.05 (4), 3.65 (3), 2.76 (3)

Chemistry:	(1)	(2)
Pb	27.65	27.50
Fe	trace	
Bi	54.69	55.48
S	17.35	17.02
Total	99.69	100.00

(1) Nordmark, Sweden. (2) PbBi<sub>2</sub>S<sub>4</sub>.

**Occurrence:** Of hydrothermal origin.

**Association:** Galena, bismuth, cosalite, aikinite, tellurobismuthite, joséite, tetradymite, tetrahedrite, gold, pyrite, quartz.

**Distribution:** In Sweden, from the Ko mine, Nordmark, Värmland [TL]; at Gladhammar and Falun, Kopparberg. From Oberpinzgau, Salzburg, Austria. At Pechtelsgrön, Saxony, Germany. From the Măgura mine, Baia Borsă district, Romania. In the Gupworthy mine, Brendon Hills, Somerset, and at Wheal Penrose, Sithney, Cornwall, England. At Corrie Buie, Meal nan Oighreag, Perthshire, Scotland. From Kingsgate, New South Wales; and at Mt. Farrell, Tasmania, Australia. At Chenzhou, Hunan Province, China. In the USA, in the Belzazzar mine, Quartzburg district, Boise Co., Idaho; and in the Hatfield mine, Okanogan Co., and the Germania mine, Fruitland, Stevens Co., Washington. From the Cariboo mine, Barkerville, Cariboo district, British Columbia; in the Siscoe mine, Gowganda, Ontario; and at Dublin Gulch, Yukon Territory, Canada. At Cerro Bonete, Bolivia. Known from a number of other minor occurrences.

**Name:** In allusion to *galena* and *bismuth* in its composition.

**Type Material:** Swedish Museum of Natural History, Stockholm, Sweden, 3987.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 471–473. (2) Berry, L.G. (1940) Studies of mineral sulfo-salts: IV — galenobismutite and "lillianite". *Amer. Mineral.*, 25, 726–734. (3) Iitaka, Y. and W. Nowacki (1962) A redetermination of the crystal structure of galenobismutite, PbBi<sub>2</sub>S<sub>4</sub>. *Acta Cryst.*, 15, 691–698. (4) Takéuchi, Y. and J. Takagi (1974) Structure of galenobismutite. *Proc. Jap. Acad.*, 50, 222–225 (in English). (5) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. *Geol. Soc. Amer. Mem.* 85, 161–162.