

Crystal Data: Monoclinic. *Point Group:* 2/m. Crystals pseudocubic, highly modified and generally irregularly developed and distorted, to 1.7 cm. Also massive, compact, or fine-grained. *Twinning:* Twin lamellae visible in polished section.

Physical Properties: *Cleavage:* {100}, indistinct. *Fracture:* Even, smooth. *Tenacity:* Sectile. Hardness = 2–3 VHN = 22–24 (100 g load). D(meas.) = 8.24–8.45 D(calc.) = 8.395

Optical Properties: Opaque. *Color:* Lead-gray to steel-gray, tarnishing to black.

Luster: Metallic. *Anisotropism:* Distinct, from dark orange to dark blue.

R₁–R₂: (400) 40.7–42.6, (420) 40.3–41.8, (440) 40.0–41.1, (460) 39.7–40.6, (480) 39.7–40.1, (500) 39.9–39.7, (520) 40.3–39.4, (540) 40.8–39.4, (560) 41.3–39.3, (580) 41.9–39.4, (600) 42.4–39.3, (620) 42.8–39.3, (640) 43.2–39.3, (660) 43.5–39.3, (680) 43.6–39.2, (700) 43.5–39.0

Cell Data: *Space Group:* P2₁/c. a = 8.164(1) b = 4.468(1) c = 8.977(1) β = 124.16°
Z = 4

X-ray Powder Pattern: Boteș, Romania.

2.31 (100), 2.87 (80), 2.25 (70), 3.01 (60), 2.14 (60), 1.389 (40), 3.19 (20)

Chemistry:

	(1)	(2)	(3)	(4)
Ag	62.42	61.16	61.52	62.86
Au			1.01	
Pb		1.90		
Te	36.96	36.11	37.77	37.14
rem.	0.24	0.83		
Total	99.62	100.00	100.30	100.00

(1) Zavodinskii mine, Kazakhstan. (2) San Sebastián, Mexico. (3) Boteș, Romania. (4) Ag₂Te.

Polymorphism & Series: Inverts to a cubic form above 155 °C.

Occurrence: In hydrothermal medium- and low-temperature veins; also in small quantities in some massive pyrite deposits.

Association: Calaverite, sylvanite, altaite, petzite, empressite, rickardite, gold, tellurium, pyrite, galena, tetrahedrite, chalcopyrite.

Distribution: In Romania, from Săcărișmb (Nagyág) [TL], Băița (Rézbánya), and in exceptional crystals and masses from Boteș, near Zlatna. In Kazakhstan, from the Zavodinskii mine, near Ziryankovsk, Altai Mountains. In the Bereznyakov gold deposit and the Yaman-Kasy Cu–Zn–pyrite deposits, Southern Ural Mountains, Russia. At Sulitjelma, northern Norway. From Kalgoorlie, Western Australia. In the Emperor mine, Vatukoula, and in the Tuvatu Au–Ag–Te deposit, Viti Levu, Fiji Islands. At the Bulawan deposit, Negros Occidental, Phillipines. In Chile, from the Condorriaco mine, near Coquimbo, and in the Wendy open pit, El Indio-Tambo district, east of La Serena, Coquimbo. In the USA, from Gold Hill, Boulder Co., and in the Eagle mine, Gilman district, Eagle Co., Colorado; in California, from the Stanislaus mine, Carson Hill district, Calaveras Co.; the McAlpine mine, Sonora, and the Jamestown mine, Tuolumne Co.; and Nevada City, Nevada Co.; in Arizona, from the Campbell mine, Bisbee, and at Tombstone, Cochise Co. In small amounts at numerous localities in Ontario, British Columbia, and Quebec, Canada, and other localities world-wide.

Name: To honor Germain Henri Hess (1802–1850), Swiss-Russian physician and chemist, of St. Petersburg, Russia.

References: (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 184–186. (2) Van der Lee, A. and J.L. de Boer (1959) Redetermination of the structure of hessite, Ag₂Te – III. Acta Cryst., C49, 1444–1446. (3) Thompson, R.M. (1949) The telluride minerals and their occurrence in Canada. Amer. Mineral., 34, 342–382. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 237.

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