

**Crystal Data:** Cubic. *Point Group:*  $2/m\bar{3}$ . Crystals are octahedral, typically modified by the cube, to 4 cm, or pyritohedral, may be striated as is pyrite; commonly internally zoned.

**Physical Properties:** *Cleavage:* Perfect on {100}. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 5.5 VHN = 657–767 (100 g load). D(meas.) = 5.9 D(calc.) = 5.966

**Optical Properties:** Opaque. *Color:* Silver-white to steel-gray; may tarnish gray or grayish black; in polished section, white. *Streak:* Grayish black. *Luster:* Metallic. R: (400) 50.2, (420) 49.7, (440) 49.1, (460) 48.6, (480) 47.7, (500) 47.0, (520) 46.2, (540) 45.7, (560) 45.3, (580) 45.1, (600) 45.0, (620) 45.1, (640) 45.3, (660) 45.5, (680) 45.9, (700) 46.3

**Cell Data:** *Space Group:*  $Pa\bar{3}$ .  $a = 5.60\text{--}5.72, 5.594$  (synthetic).  $Z = 4$

**X-ray Powder Pattern:** Synthetic. 2.545 (100), 2.325 (90), 1.716 (80), 2.848 (60), 2.013 (35), 1.521 (35), 1.096 (20)

Chemistry:	(1)	(2)	(3)
Ni	34.31	35.7	35.42
Fe		0.2	
Co		0.1	
As	45.33	44.3	45.23
Sb	1.17	1.6	
S	18.50	19.0	19.35
rem.	0.69		
Total	[100.00]	100.9	100.00

(1) Rhodesia; recalculated to 100% after deduction of gangue; corresponds to  $\text{Ni}_{1.01}(\text{As}_{1.05}\text{Sb}_{0.02})_{\Sigma=1.07}\text{S}_{1.00}$ . (2) Cochabamba, Bolivia; by electron microprobe, corresponds to  $(\text{Ni}_{1.03}\text{Fe}_{0.01})_{\Sigma=1.04}(\text{As}_{1.00}\text{Sb}_{0.02})_{\Sigma=1.02}\text{S}_{1.00}$ . (3) NiAsS.

**Polymorphism & Series:** Modifications  $-Pa\bar{3}$ ,  $-P2_13$ , and  $-Pca2_1$  are known.

**Mineral Group:** Cobaltite group.

**Occurrence:** In hydrothermal vein deposits formed at medium temperatures.

**Association:** Nickeline, nickel-skutterudite, cobaltite, ullmannite, maucherite, löllingite, platinum-group minerals, millerite, pyrite, marcasite, chalcopyrite.

**Distribution:** A number of new localities have been recognized in recent years, only a few of which can be listed. In Austria, from Schladming, 64 km southeast of Salzburg, Styria [TL], and at Olsa, Freisach, Carinthia. In Germany, at Müsen, Wissen, and Ramsbeck, North Rhine-Westphalia; from Lobenstein, Thuringia; at Bad Ems and Dillenburg, Hesse; and from the Rammelsberg mine, near Goslar, and at Wolfsberg, Harz Mountains. From Dobšiná (Dobschau), Slovakia. In the Craignure mine, Inverary, Strathclyde region, Scotland. At Silvermines, Co. Tipperary, Ireland. In the USA, large crystals from the Snowbird mine, Mineral Co., Montana. In Canada, in several mines at Sudbury and Cobalt, Ontario. At Cochabamba, Bolivia. In the Aït Ahmane mine, 10 km east of Bou Azzer, Morocco, as fine crystals. From the Mt. Ogilvie and Nichol Nob mines, Flinders Ranges, South Australia.

**Name:** To honor Johann von Gersdorff (1781–1849), owner of the nickel mine at Schladming, Austria.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1944) Dana's system of mineralogy, (7th edition), v. I, 298–300. (2) Yund, R.A. (1962) The system Ni–As–S: phase relations and mineralogical significance. *Amer. J. Sci.*, 260, 761–782. (3) Bayliss, P. (1982) A further crystal structure refinement of gersdorffite. *Amer. Mineral.*, 67, 1058–1064. (4) Bayliss, P. (1986) Subdivision of the pyrite group, and a chemical and X-ray diffraction investigation of ullmannite. *Can. Mineral.*, 24, 27–33. (5) (1961) NBS Mono. 25, 1, 35. (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 195.

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