

**Crystal Data:** Hexagonal. *Point Group:* 32. Massive, fine-grained, compact; rarely in minute crystals. *Twinning:* Possibly the cause of mosaic structure seen in polished section.

**Physical Properties:** Hardness = 4 VHN = 230–254 (100 g load). D(meas.) = 5.82 D(calc.) = 5.87

**Optical Properties:** Opaque. *Color:* Pale bronze; in polished section, yellowish cream colored. *Luster:* Metallic. *Anisotropism:* Strong, brown to bluish gray.

R<sub>1</sub>–R<sub>2</sub>: (400) 24.0–25.4, (420) 31.2–31.9, (440) 38.2–38.5, (460) 43.6–44.0, (480) 47.5–48.5, (500) 49.9–51.7, (520) 51.4–54.1, (540) 52.4–55.6, (560) 53.1–56.7, (580) 53.7–57.5, (600) 54.3–58.2, (620) 54.8–58.8, (640) 55.3–59.2, (660) 55.9–59.6, (680) 56.3–60.1, (700) 56.8–60.4

**Cell Data:** *Space Group:* R32. *a* = 5.741 *c* = 7.139 *Z* = 3

**X-ray Powder Pattern:** Heazlewood, Tasmania, Australia. 1.828 (10), 1.817 (10), 2.88 (9), 1.661 (8), 4.11 (5), 2.04 (5), 2.39 (4)

Chemistry:	(1)	(2)
Ni	72.13	73.30
Fe	0.55	
S	25.96	26.70
insol.	0.59	
Total	99.23	100.00

(1) Heazlewood, Tasmania, Australia. (2) Ni<sub>3</sub>S<sub>2</sub>.

**Occurrence:** In serpentinized dunites and lherzolites, and in ophiolites, probably of hydrothermal origin; in layered mafic intrusives and chromitites, where it may be a low-temperature secondary mineral; in mantle xenoliths.

**Association:** Pentlandite, chalcopyrite, violarite, cubanite, millerite, mackinawite, orcelite, zaratite, shandite, awaruite, platinum group minerals, magnetite, chromite.

**Distribution:** In Australia, in Tasmania, from the Lord Brassey mine, near Heazlewood [TL], and at Trial Harbour. In the USA, from the Cedar Hill quarry, Lancaster Co., Pennsylvania; in Josephine Co., Oregon; and in California, crystals from the Dorleska mine, Trinity Co. In Canada, at Miles Ridge, Yukon Territory; and in Quebec, from the Marbridge mine, Malartic, La Motte Township; at the Jeffrey mine, Asbestos; and in a prospect pit near Mount Albert, Gaspé Peninsula. In the Kop Krom chrome mine, Kop Mountains, near Aşkale, Turkey. In Iran, at Tschagal, near Rabad Sefid. In Switzerland, from Poschiavo, Graubünden. At Hirt, near Friesach, Carinthia, Austria. From the Agorani area, Othrys ophiolitic complex, Greece. At Vadu Dobrii, Romania. From Cap Corse, Corsica, France. In the Amianthus mine, Kaapsche Hoop, Barberton, Transvaal, South Africa. From the Ban Phuc deposit, Vietnam. In the Otoigawa district, Niigata Prefecture; from the Kamuikotan zone and the Horoman peridotite, Hokkaido; and elsewhere in Japan. In small amounts from a large number of other localities.

**Name:** For the locality near Heazlewood, Tasmania, Australia.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, R641.

**References:** (1) Peacock, M.A. (1947) On heazlewoodite and the artificial compound Ni<sub>3</sub>S<sub>2</sub>. Univ. of Toronto Studies, Geol. Ser., 51, 59–69. (2) (1947) Amer. Mineral., 32, 484 (abs. ref. 1). (3) Fleet, M.E. (1977) The crystal structure of heazlewoodite, and the metallic bonds in sulfide minerals. Amer. Mineral., 62, 341–345. (4) Parise, J.B. (1980) Structure of heazlewoodite (Ni<sub>3</sub>S<sub>2</sub>). Acta Cryst., 36, 1179–1180. (5) Berry, L.G. and R.M. Thompson (1962) X-ray powder data for the ore minerals. Geol. Soc. Amer. Mem. 85, 45. (6) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 226.

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