

Crystal Data: Hexagonal, pseudocubic. *Point Group:* $\bar{3}2/m$. As minute grains embedded in serpentine; oriented within and as thin rims on other sulfides.

Physical Properties: *Cleavage:* Rhombohedral. Hardness = 4 VHN = n.d.
D(meas.) = 8.72 D(calc.) = 8.87

Optical Properties: Opaque. *Color:* In polished section, cream-white. *Luster:* Metallic. *Pleochroism:* Distinct. *Anisotropism:* Strong; in gray-blue and yellow-brown.
R₁–R₂: n.d.

Cell Data: *Space Group:* $R\bar{3}m$. $a = 5.591(1)$ $c = 13.579(1)$ $Z = 3$

X-ray Powder Pattern: Synthetic.

2.794 (100), 2.779 (98), 1.971 (86), 3.943 (84), 2.281 (81), 1.610 (42), 1.759 (31)

Chemistry:

	(1)	(2)
Pb	61.64	63.30
Cu	0.00	
Zn	0.01	
Ni	28.40	26.90
Fe	0.43	
Co	0.14	
Mn	0.08	
Bi	0.00	
S	9.58	9.80
Total	[100.28]	100.00

(1) Isua Belt, Greenland; by electron microprobe, original total given as 100.29%; corresponds to Pb_{1.91}Fe_{0.05}Mn_{0.01}Ni_{3.10}Co_{0.02}S_{1.91}. (2) Pb₂Ni₃S₂.

Occurrence: In serpentine (Trial Harbour, Australia and Isua Belt, Greenland); in segregations in an iron-rich lens in basalt (Kitdlit, Greenland).

Association: Heazlewoodite, pentlandite, sphalerite, chromite, magnetite (Trial Harbour, Australia); galena, altaite, lead, iron, troilite (Kitdlit, Greenland); heazlewoodite, pentlandite (Isua Belt, Greenland).

Distribution: In Australia, from Trial Harbour, Tasmania [TL], and at Nullagine, Western Australia. From near Kitdlit, Disko Island, and in the Isua Belt, about 150 km northeast of Godthåb, western Greenland. In the Jeffrey mine, Asbestos, Quebec, Canada. From the Itoigawa district, Niigata Prefecture, Japan.

Name: To honor the Scottish petrologist, Professor Samuel James Shand (1882–1957), of Columbia University, New York, USA.

Type Material: n.d.

References: (1) Ramdohr, P. (1950) Über das Vorkommen von Heazlewoodit Ni₃S₂ und über ein neues ihn begleitendes Mineral: Shandit Ni₃Pb₂S₂. Sitzungsberichte der Deutschen Akademie der Wissenschaften zu Berlin (Mathematisch-naturwissenschaftliche Klasse, Jahrgang 1949) 6, 1–29 (in German). (2) Peacock, M.A. and J. McAndrew (1950) On parkerite and shandite and the crystal structure of Ni₃Pb₂S₂. Amer. Mineral., 35, 425–439. (3) Brower, W.S., H.S. Parker, and R.S. Roth (1974) Reexamination of synthetic parkerite and shandite. Amer. Mineral., 59, 296–301. (4) Clauss, A., M. Warasteh, and K. Weber (1978) Kristallchemische Untersuchung der Mischungsreihe Ni₃Pb₂S₂–Ni₃Pb₂Se₂ sowie eine Bemerkung zur Shandit-Struktur. Neues Jahrb. Mineral., Monatsh., 256–268 (in German with English abs.). (5) Dymek, R.F. (1987) Shandite, Ni₃Pb₂S₂, in a serpentinized metadunite from the Isua Supracrustal Belt, west Greenland. Can. Mineral., 25, 245–249. (6) Ramdohr, P. (1969) The ore minerals and their intergrowths, (3rd edition), 404–405.

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