

**Crystal Data:** Cubic. *Point Group:*  $4/m\bar{3}2/m$ . As equant grains with rounded outlines, subhedral to euhedral crystals and as irregular grains to 75  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* None. *Tenacity:* Sectile. *Fracture:* n.d. Hardness = 4-5 VHN = 244-267, 257 average (25 g load). D(meas.) = n.d. D(calc.) = 10.64

**Optical Properties:** Opaque. *Color:* Steel gray with a bronze tint; in reflected light, bright creamy white (near bornite and chalcopyrite) to bright white (near digenite and chalcocite). *Streak:* Black. *Luster:* Metallic.

*Optical Class:* Isotropic. Nonpleochroic.

R<sub>1</sub>-R<sub>2</sub>: (470) 58.65-47.4, (546) 62.6-51.1, (589) 64.1-52.8, (650) 65.25-53.95

**Cell Data:** *Space Group:*  $Pm\bar{3}m$ .  $a = 3.0014(2)$   $Z = 1$

**X-ray Powder Pattern:** Skaergaard intrusion, Greenland.

2.122 (100), 0.8021 (70), 1.2254 (50), 1.5000 (20), 0.9491 (20), 0.8666 (10), 3.003 (5)

Chemistry:	(1)	(2)
Pd	58.94	62.61
Pt	1.12	
Au	2.23	
Cu	29.84	37.39
Fe	3.85	
Zn	1.46	
Sn	1.08	
Te	0.28	
Pb	0.39	
Total	99.19	100.00

(1) Skaergaard intrusion, Greenland; average electron microprobe analysis; corresponds to  $(\text{Pd}_{0.967}\text{Au}_{0.020}\text{Pt}_{0.010})_{\Sigma=0.997}(\text{Cu}_{0.820}\text{Fe}_{0.120}\text{Zn}_{0.039}\text{Sn}_{0.016}\text{Te}_{0.004}\text{Pb}_{0.003})_{\Sigma=1.002}$ . (2) PdCu.

**Polymorphism & Series:** Solid solution series with hongshiite and tulameenite.

**Occurrence:** In mafic-ultramafic layered intrusions associated with sulfide minerals possibly formed from immiscible melts.

**Association:** Nielsenite, keithconnite, vasilite, zvyagintsevite, (Cu,Pd,Au), (Pd,Cu,Sn), (Pt,Fe,Cu,Pd) alloys, unnamed phases Au<sub>3</sub>Cu and PdAuCu (Skaergaard).

**Distribution:** In the Skaergaard intrusion, Kangerdlugssuaq area, Greenland [TL]. From the Marathon deposit, Coldwell Complex, Ontario, Canada; at the Monchetundra deposit, Kola Peninsula, and the Konder zoned alkali-ultrabasic massif, Russia; in the J-M Reef, Stillwater Complex, Montana, and the South Kawishiwi intrusion, Duluth Complex, Minnesota, USA. In the Kirakkajuppura PGE deposit, Penikat layered intrusion, Finland.

**Name:** For the occurrence at the *Skaergaard* intrusion, Greenland.

**Type Material:** Geology Museum, Copenhagen, Denmark (90-24 1057 45-1, 45-2, 125-2, 125-3; GM 2004.66), the Natural History Museum, London, England (BM 2003,47) and the Canadian Museum of Nature, Ottawa, Ontario (90-24 1057 75-1; CMNMC 84396).

**References:** (1) Rudashevsky, N.S., A.M. McDonald, L.J. Cabri, T.F.D. Nielsen, C.J. Stanley, Yu.L. Kretzer, and V.N. Rudashevsky (2004) Skaergaardite, PdCu, a new platinum-group intermetallic mineral from the Skaergaard intrusion, Greenland. *Mineral. Mag.*, 68(4), 615-632 and 962.

(2) Godel, B. and S.-J. Barnes (2008) Image analysis and composition of platinum-group minerals in the J-M Reef, Stillwater Complex. *Econ. Geol.*, 103, 637-651.