

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{6} 2m$ . As irregular grains to 39  $\mu\text{m}$ .

**Physical Properties:** *Cleavage:* None. *Fracture:* n.d. *Tenacity:* n.d. *Hardness:* = n.d.  
D(meas.) = n.d. D(calc.) = 9.718-9.753

**Optical Properties:** Opaque. *Color:* Bright creamy white in reflected light. *Streak:* n.d.  
*Luster:* Metallic.

*Optical Class:* n.d. Weakly bireflectant. *Anisotropism:* Weak, shades of blue and olive green.  
R<sub>1</sub>-R<sub>2</sub>: (470) 49.6-52.7 (36.3-38.6)<sub>oil</sub>, (546) 51.2-53.8 (27.6-39.5)<sub>oil</sub>, (589) 51.6-53.7 (37.8-39.5)<sub>oil</sub>,  
(650) 51.7-53.3 (37.9-39.3)<sub>oil</sub> (UG-2 deposit)

**Cell Data:** *Space Group:*  $P\bar{6} 2m$ .  $a = 6.496(5)$   $c = 3.433(4)$   $Z = 3$  (calculated.)

**X-ray Powder Pattern:** Calculated pattern.

2.3658 (100), 2.1263 (37), 2.1808 (34), 3.240 (20), 1.8752 (19), 1.7265 (12), 1.3403 (11)

| <b>Chemistry:</b> | (1)         | (2)         |
|-------------------|-------------|-------------|
| Si                | 7.95        | 10.13       |
| Pd                | 68.56       | 68.77       |
| Ag                | 1.07        | 0.33        |
| Ni                | 4.59        | 5.16        |
| Te                | 0.32        | n.d.        |
| Sb                | 0.36        | 0.11        |
| As                | 3.95        | 2.18        |
| Fe                | 0.64        | 0.35        |
| Pt                | 1.72        | 4.45        |
| Sn                | 1.79        | 3.08        |
| Cu                | 2.18        | 1.62        |
| <u>Rh</u>         | <u>2.39</u> | <u>3.76</u> |
| Total             | 95.53       | 99.94       |

(1) Kapalagulu Intrusion, western Tanzania; average of 8 electron microprobe analyses; corresponds to (Pd<sub>1.657</sub>Ni<sub>0.201</sub>Cu<sub>0.088</sub>Rh<sub>0.06</sub>Fe<sub>0.029</sub>Ag<sub>0.026</sub>Pt<sub>0.023</sub>Sn<sub>0.039</sub>) $\Sigma=2.123$ (Si<sub>0.728</sub>As<sub>0.136</sub>Sb<sub>0.008</sub>Te<sub>0.006</sub>) $\Sigma=0.878$ .

(2) UG-2, Bushveld Complex, South Africa; average of 12 electron microprobe analyses; corresponding to (Pd<sub>1.557</sub>Ni<sub>0.212</sub>Cu<sub>0.061</sub>Rh<sub>0.088</sub>Fe<sub>0.015</sub>Ag<sub>0.007</sub>Pt<sub>0.055</sub>Sn<sub>0.063</sub>) $\Sigma=2.058$ (Si<sub>0.869</sub>As<sub>0.07</sub>Sb<sub>0.02</sub>) $\Sigma=0.941$ .

**Occurrence:** In heavy mineral concentrates from layered mafic intrusions.

**Association:** Chromite, pentlandite, pyrrhotite/troilite, chalcopyrite, magnetite, gudmundite, arsenopyrite, zircon, galena, anglesite.

**Distribution:** From the (PGE)-chromite horizon, Kapalagulu Intrusion, near the eastern shore of Lake Tanganyika, western Tanzania, and in the UG-2 chromitite, Bushveld Complex, South Africa.

**Name:** For the mineral's two essential chemical components, palladium and silicon.

**Type Material:** Canadian Museum of Nature, Gatineau, Québec, Canada (CMNMC 86891).

**References:** (1) Cabri, L.J., A.M. McDonald, C.J. Stanley, N.S. Rudashevsky, G. Poirier, H.R. Wilhelmij, W. Zhe, and V.N. Rudashevsky (2015) Palladosilicide, Pd<sub>2</sub>Si, a new mineral from the Kapalagulu Intrusion, Western Tanzania and the Bushveld Complex, South Africa. *Mineral. Mag.*, 79(2), 295-307. (2) (2016) *Amer. Mineral.*, 101, 2571 (abs. ref. 1).