**Palladosilicide**

**Crystal Data:** Hexagonal.  
*Point Group:* 6 2m.  
As irregular grains to 39 μm.

**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.

**R1-R2:**  
(470) 49.6-52.7 (36.3-38.6)Oil,  
(546) 51.2-53.8 (27.6-39.5)oil,  
(589) 51.6-53.7 (37.8-39.5)oil,  
(650) 51.7-53.3 (37.9-39.3)oil  
(UG-2 deposit)

**Cell Data:**  
*Space Group:* P 6 2 m.  
*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) |

**Chemistry:**

<table>
<thead>
<tr>
<th>Element</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Si</td>
<td>7.95</td>
<td>10.13</td>
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<tr>
<td>Pd</td>
<td>68.56</td>
<td>68.77</td>
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<tr>
<td>Ag</td>
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<td>0.33</td>
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<tr>
<td>Ni</td>
<td>4.59</td>
<td>5.16</td>
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<tr>
<td>Te</td>
<td>0.32</td>
<td>n.d.</td>
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<tr>
<td>Sb</td>
<td>0.36</td>
<td>0.11</td>
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<tr>
<td>As</td>
<td>3.95</td>
<td>2.18</td>
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<tr>
<td>Fe</td>
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<td>0.35</td>
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<tr>
<td>Pt</td>
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<td>4.45</td>
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<td>Sn</td>
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<tr>
<td>Cu</td>
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<td>1.62</td>
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<tr>
<td>Rh</td>
<td>2.39</td>
<td>3.76</td>
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<tr>
<td>Total</td>
<td>95.53</td>
<td>99.94</td>
</tr>
</tbody>
</table>

(1) Kapalagulu Intrusion, western Tanzania; average of 8 electron microprobe analyses; corresponds to *(Pd_{1.657}Ni_{0.201}Cu_{0.088}Fe_{0.029}Ag_{0.026}Pt_{0.023}Sn_{0.039})_{2}Si_{0.728}As_{0.136}Sb_{0.008}Te_{0.006}2.123*(Si_{0.869}As_{0.07}Sb_{0.02})(Σ=0.941-0.987).

(2) UG-2, Bushveld Complex, South Africa; average of 12 electron microprobe analyses; corresponding to *(Pd_{1.557}Ni_{0.212}Cu_{0.061}Rh_{0.088}Fe_{0.015}Ag_{0.007}Pt_{0.055}Sn_{0.063})_{2}Si_{0.869}As_{0.07}Sb_{0.02}2.058*(Σ=0.941-0.987).

**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, Quebec, Canada (CMNMC 86891).

**References:**  
(1)  