Panskyite

Pd$_9$Ag$_2$Pb$_2$S$_4$

Crystal Data: Tetragonal.  
Point Group: 4/m 2/m 2/m.  
As anhedral grains to 10 μm in the interstices of rock-forming silicates (plagioclase, amphibole, clinozoisite and quartz), as inclusions in base-metal sulfides, and as complex intergrowths with other platinum group minerals.

Physical Properties: Cleavage: n.d.  
Tenacity: Brittle.  
Fracture: n.d.  
Hardness = n.d.  
D(meas.) = n.d.  
D(calc.) = 9.81

Optical Properties: Opaque.  
Color: Creamy white in reflected light.  
Streak: Gray.  
Luster: Metallic.

Optical Class: Anisotropy: Distinct, brown to gray.  
Weak bireflectance and pleochroism.

R$_1$-R$_2$: (470) 43.8-44.1, (546) 44.4-44.7, (589) 45.6-45.8, (650) 47.2-47.2

a = 7.98  
c = 9.14  
Z = 2

X-Ray Diffraction Pattern: Synthetic Pd$_{9.07}$Ag$_{2.22}$Pb$_{1.78}$S$_{3.93}$.

Chemistry:

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pd</td>
<td>55.61</td>
<td></td>
</tr>
<tr>
<td>Ag</td>
<td>12.36</td>
<td></td>
</tr>
<tr>
<td>Pb</td>
<td>23.50</td>
<td></td>
</tr>
<tr>
<td>Fe</td>
<td>0.21</td>
<td></td>
</tr>
<tr>
<td>Ni</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>7.17</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99.09</strong></td>
<td></td>
</tr>
</tbody>
</table>

(1) Pansky massif, Fedorova-Pana intrusion, Kola Peninsula, Russia; average electron microprobe analysis; corresponds to (Pd$_{9.05}$Fe$_{0.07}$Ni$_{0.07}$)$_{2-9.19}$Ag$_{1.98}$Pb$_{1.96}$S$_{3.93}$.

Mineral Group: Pb-analogue of thalhammerite.

Occurrence: In anorthosites with irregular disseminations of sulfide and platinum-group minerals in a layered intrusion.

Association: Millerite, chalcopyrite, bornite, chalcocite (included in); zvyagintsevite, laflammeite, vysotskite, thalhammerite (intergrown with).

Distribution: From the Pansky massif, southern Fedorova-Pana layered intrusion, Kola Peninsula, Russia [TL]. Also, in low-sulfide PGE ores, Northern PGE reef in the Lower Layered Horizon zone, Kievey and Northern Kamennik deposits.

Name: For the discovery locality, the Pansky massif.
