Nielsenite

Crystal Data: Tetragonal.  

Physical Properties: 

- **Point Group**: 4mm. 
- As droplet shaped or irregular grains, to 0.05 mm. 
- **Cleavage**: None. 
- **Fracture**: None. 
- **Tenacity**: Sectile. 
- **Hardness**: n.d. 
- **D(meas.)**: n.d. 
- **D(calc.)**: 9.53

Optical Properties: 

- **Color**: Steel gray; bright creamy white in reflected light. 
- **Streak**: Black. 
- **Luster**: Metallic. 
- **Optical Class**: n.d.

Cell Data: 

- **Space Group**: P4mm (synthetic). 
- **a** = 3.7125(8) 
- **c** = 25.62(1) 
- **Z** = 4

X-ray Powder Pattern: 

- Skaergaard intrusion, Kangerdlunssuaq area, East Greenland. 
- 2.137 (100), 1.8596 (70), 1.3042 (60), 1.1181 (55), 1.8337 (40), 1.0663 (30), 0.8459 (25)

Chemistry: 

<table>
<thead>
<tr>
<th>Element</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pd</td>
<td>29.86</td>
<td>35.82</td>
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<tr>
<td>Pt</td>
<td>3.08</td>
<td></td>
</tr>
<tr>
<td>Au</td>
<td>3.70</td>
<td></td>
</tr>
<tr>
<td>Cu</td>
<td>61.96</td>
<td>64.18</td>
</tr>
<tr>
<td>Fe</td>
<td>0.59</td>
<td></td>
</tr>
<tr>
<td>Pb</td>
<td>0.17</td>
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</tr>
<tr>
<td>Total</td>
<td>99.36</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1)  Skaergaard intrusion, East Greenland; average of 11 EDS analyses, corresponding to

(Pd_{0.862}Au_{0.058}Pt_{0.049}Fe_{0.025}Pb_{0.003})(Cu_{2.996}Fe_{0.004})_{2-3}.

(2)  PdCu_3.

Occurrence: As the crystallized products of immiscible melts in thoelitic gabbro and that formed at temperatures at of below 508° C, in a highly differentiated layered intrusion.

Association: Bornite-chalcocite, bornite with trace Ni-Co and Zn sulfides, skaergaardite, keithconnite, vasilite, zvyagintsevite, (Cu,Pd,Au), (Pd,Cu,Sn), (Pt,Fe,Cu,Pd) alloys, and unnamed phases Au_3Cu and PdAuCu.

Distribution: Platinova Reef, Skaergaard intrusion, Kangerdlunssuaq area, East Greenland.

Name: Honors Troels F.D. Nielsen (b. 1950), a geologist with the Geological Survey of Denmark and Greenland.

Type Material: Geologisk Museum, Copenhagen K, Denmark, 2008.1.

References: 