Zaccariniite

RhNiAs

Crystal Data: Tetragonal.  
Point Group: 4/m 2/m 2/m.  
As irregular grains to 20 μm.

Physical Properties: 
Cleavage: None.  
Fracture: Irregular.  
Tenacity: Brittle.  
Hardness = 3.5-4 
VHN = 218 (5 g load on synthetic material).  
D(meas.) = 10.09  
D(calc.) = 10.19

Optical Properties: 
Opaque.  
Color: Gray, white with brownish to pinkish tints in reflected light.  
Streak: Gray.  
Luster: Metallic.  
Optical Class: Isotropic.  
Bireflectance: Strong.  
Pleochroism: Strong, white to pinkish brownish white.  
Anisotropism: Moderate to strong, orange to blue–green.  
R₁-R₂: (470) 49.4-52.6, (546) 52.4-53.2, (589) 54.2-53.2, (650) 56.6-53.3

Cell Data: 
a = 3.5498(1)  
c = 6.1573(2)  
Z = 2

X-ray Powder Pattern: 
Loma Peguera chromitite, Cordillera Central, Dominican Republic. 
2.325 (100), 1.776 (80), 1.945 (51), 0.9730 (42), 2.509 (40), 1.256 (40), 1.055 (23)

Chemistry: 

<table>
<thead>
<tr>
<th>Element</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rh</td>
<td>41.77</td>
</tr>
<tr>
<td>Os</td>
<td>0.51</td>
</tr>
<tr>
<td>Ir</td>
<td>0.64</td>
</tr>
<tr>
<td>Ru</td>
<td>0.46</td>
</tr>
<tr>
<td>Pd</td>
<td>0.34</td>
</tr>
<tr>
<td>Ni</td>
<td>23.75</td>
</tr>
<tr>
<td>Fe</td>
<td>0.53</td>
</tr>
<tr>
<td>As</td>
<td>27.84</td>
</tr>
<tr>
<td>S</td>
<td>0.10</td>
</tr>
<tr>
<td>Total</td>
<td>96.09</td>
</tr>
</tbody>
</table>

(1) Loma Peguera chromitite, Cordillera Central, Dominican Republic; average of 3 electron microprobe analyses, corresponding to \((\text{Rh}_{1.01}\text{Os}_{0.01}\text{Ir}_{0.01}\text{Ru}_{0.01}\text{Pd}_{0.01})\text{Ni}_{1.00}\text{Fe}_{0.02}\).  
\((\text{As}_{0.93}\text{S}_{0.01})\text{As}_{0.93}\).

Occurrence: A low temperature mineral formed during alteration of ophiolite, now in heavy-mineral concentrate derived from ophiolitic chromitite.

Association: Garutiite, hexaferrum, Ru-Os-Ir-Fe alloys, Ru-Os-Ir-Fe oxygenated compounds, chromite.

Distribution: 
Loma Peguera chromitite, Loma Caribe peridotite, Cordillera Central, Dominican Republic.  
From the Koryako-Kamchatskiy region and Nizhny Tagil, Ural-Alaskan chromitites, Urals, Russia.  
Also from the Chindwin area, Burma; the Onverwacht pipe, Bushveld Complex, South Africa; Thetford mine, Quebec, Canada; the Vourinos chromitites, Greece, and the Kempirsai chromitites, Kazakhstan.

Name: Honors Professor Federica Zaccarini (b. 1962), University of Leoben, Austria, in recognition of her contributions to the mineralogy of platinum-group elements and their deposits.

Type Material: Mineralogical Museum of Leoben, Austria (8241).

References: 