**Petewilliamsite**

**(Ni,Co)$_{30}$(As$_2$O$_7$)$_{15}$**

**Crystal Data:** Monoclinic.  *Point Group:* 2.  As crudely formed equant grains, to 0.5 mm, with rounded crystal faces.


D(meas. = n.d.  D(calc.) = 4.904


R = (470) 9.59, (546) 9.32, (589) 9.27, (650) 9.33

**Cell Data:**  *Space Group:* C2.  

$a = 33.256(5)$  

$b = 8.482(1)$  

$c = 14.191(2)$  

$\beta = 104.145(3)^\circ$  

Z = 2

**X-ray Powder Pattern:** Johanngeorgenstadt, Saxony, Germany.  

3.118 (100), 3.005 (60), 2.567 (50), 1.637 (50), 4.235 (30), 1.507(30B), 2.452 (20)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NiO</td>
<td>19.45</td>
<td>18.47</td>
</tr>
<tr>
<td>CoO</td>
<td>18.39</td>
<td>17.74</td>
</tr>
<tr>
<td>CuO</td>
<td>3.40</td>
<td>3.35</td>
</tr>
<tr>
<td>CaO</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td>FeO</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>As$_2$O$_5$</td>
<td>60.32</td>
<td>60.45</td>
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<tr>
<td>Total</td>
<td>101.77</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Johanngeorgenstadt, Saxony, Germany; average of 3 electron microprobe analyses, corresponding to (Ni$^{2+}_{14.66}$Co$^{2+}_{13.32}$Cu$^{2+}_{2.41}$Ca$_{0.17}$Fe$^{2+}_{0.03}$)$_2$As$_{5+}$(As$_2$O$_7$)$_{15}$.

(2) (Ni$_{14.1}$Co$_{13.5}$Cu$_{2.4}$)$_{30}$(As$_2$O$_7$)$_{15}$.

**Occurrence:** Known from one specimen; therein the product of oxidation of nickeline.

**Association:** Xanthiosite, aerugite, paganoite, nickeline, bismuth, bunsenite, rooseveltite, quartz.

**Distribution:** Johanngeorgenstadt, Saxony, Germany.

**Name:** Honors geochemist–crystallographer Professor Peter Allan Williams (b. 1950) of the University of Western Sydney, New South Wales, Australia.
