Pseudolyonsite     

Crystal Data: Monoclinic. **Point Group:** 2/m. As needles to 0.5 mm or in sprays or openwork clusters to 1 mm.

**Physical Properties:** 
Cleavage: None. 
Fracture: Conchoidal. 
Tenacity: Brittle, needles flexible and elastic. 
Hardness = 2-3 
D(meas.) = n.d. 
D(calc.) = 4.749

**Optical Properties:** 
Translucent to opaque. 
Color: Dark red with brownish tint; gray with a weak bluish tint in reflected light, with strong red internal reflections. 
Streak: Reddish brown. 
Luster: Adamantine to semi-metallic. 
Anisotropy: Distinct.

**Optical Class:** n.d.

**Cell Data:** 
**Space Group:** P2_1/c 
**a** = 6.2695(4) 
**b** = 8.0195(3) 
**c** = 6.3620(3) 
**β** = 111.96(1)° 
**Z** = 2

**X-ray Powder Pattern:** 
Tolbachik volcano, Kamchatka Peninsula, Russia.

<table>
<thead>
<tr>
<th>2.761 (100)</th>
<th>3.22 (87)</th>
<th>3.30 (79)</th>
<th>2.894 (74)</th>
<th>2.419 (67)</th>
<th>4.70 (60)</th>
<th>2.479 (59)</th>
</tr>
</thead>
</table>

**Chemistry:** 

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V_2O_5</td>
<td>40.37</td>
<td>43.25</td>
</tr>
<tr>
<td>CuO</td>
<td>48.83</td>
<td>56.75</td>
</tr>
<tr>
<td>ZnO</td>
<td>7.6</td>
<td></td>
</tr>
<tr>
<td>MoO_3</td>
<td>1.89</td>
<td></td>
</tr>
<tr>
<td>SiO_2</td>
<td>0.14</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>98.83</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Tolbachik volcano, Kamchatka Peninsula, Russia; average of 4 electron microprobe analyses; corresponding to (Cu_{2.58}Zn_{0.44})_{2-3.02}(V_{1.88}Mo_{0.06}Si_{0.02})_{2-1.96}O_8. 
(2) Cu_3(VO_4)_2.

**Polymorphism & Series:** 
Dimorphous with mcbirneyite and the natural analogue of synthetic monoclinic Cu_3(VO_4)_2.

**Occurrence:** 
Formed by late post-eruptive degassing in cavities from several centimeters to 1.5 m in size under the surface crust of volcanic cinder - typically as overgrowths on acicular piypite.

**Association:** 
Piypite, palmierite, lyonsite, hematite.

**Distribution:** 
From the Yadovitaya (“Poisonous”) fumarole, Second cone, Tolbachik volcano, Kamchatka Peninsula, Far East Asia, Russia.

**Name:** For its close visual (color, luster, habit) similarity to lyonsite.

**Type Material:** A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (# 3879/1).

**References:** 