Allochalcoselite

Crystal Data: Monoclinic.  

Point Group: 2/m.  

As prismatic crystals, to 0.1 mm.

Physical Properties: Cleavage: Perfect on {100}.  

Fracture: n.d.  

Tenacity: Brittle.

Hardness = 3-4  

D(meas.) = n.d.  

D(calc.) = 4.61

Optical Properties: Transparent.  

Color: Dark brown.  

Streak: Brown.  

Luster: Adamantine.

Optical Class: Biaxial (+)  

α = 1.98(1)  

β = 2.01(1)  

γ = 2.08(1)  

2V(meas.) = 50(15)°  

2V(calc.) = 68(10)°


Orientation: X = c, Y = b.

Cell Data: Space Group: C2/m.  

a = 18.468(2)  

b = 6.1475(8)  

c = 15.314(2)

β = 119.284(2)°  

Z = 4

X-ray Powder Pattern: Great Tolbachik Fissure Eruption, Kamchatka Region, Russia.  

3.08 (100), 3.86 (80), 3.55 (80), 1.543 (50), 1.349 (40), 1.710 (30), 1.448 (30)

Chemistry:

<table>
<thead>
<tr>
<th>Element</th>
<th>Formula</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>CuO</td>
<td></td>
<td>43.96</td>
</tr>
<tr>
<td>ZnO</td>
<td></td>
<td>0.15</td>
</tr>
<tr>
<td>SeO₂</td>
<td></td>
<td>20.66</td>
</tr>
<tr>
<td>PbO₂</td>
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<td>2.34</td>
</tr>
<tr>
<td>Cl</td>
<td></td>
<td>16.58</td>
</tr>
<tr>
<td>-O = Cl₂</td>
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<td>3.75</td>
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<tr>
<td>Total</td>
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<td>99.94</td>
</tr>
</tbody>
</table>

(1) Great Tolbachik Fissure Eruption, Kamchatka Region, Russia; average of 21 electron microprobe analyses; corresponds to Cu⁺Cu²⁺₃PbO₂(SeO₃)₂Cl₅.

Occurrence: Formed by sublimation around a degassing volcanic fumarole.

Association: Cotunnite, sophiite, ilinskite, georgbokiite, burnsite.

Distribution: From second cinder cone of the northern breach of the Great Tolbachik Fissure Eruption, Kamchatka Region, Russia.

Name: Derived from the Greek for “different” (allos) and “copper” (chalkos) and from “seLENium”, to reflect the different valences and crystallographic behavior of copper in this selenite mineral.

Type Material: n.d.


