Wallisite  
\( \text{PbTl(Cu, Ag)As}_2\text{S}_5 \)


Crystal Data: Triclinic.  \( \text{Point Group: \ 1 or 1} \). As small crystals to 1 mm, more commonly massive.

Physical Properties:  \( \text{Cleavage: Pronounced on } \{001\} \).  \( \text{Hardness = n.d. VHN = n.d.} \)
\( \text{D(meas.) = n.d.} \)  \( \text{D(calc.) = 5.71} \)

Optical Properties:  \( \text{Opaque. Color: Lead-gray. Luster: Metallic.} \)
\( \text{R}_1–\text{R}_2: \text{n.d.} \)

Cell Data:  \( \text{Space Group: } \text{P}\overline{1} \text{ or } P1. \text{ a = 9.215  b = 8.524  c = 7.980 } \alpha = 55^\circ59(6)' \beta = 62^\circ30(6)' \gamma = 69^\circ24(6)' Z = 2 \)

X-ray Powder Pattern:  Binntal, Switzerland.
3.339 (100), 2.834 (50), 2.879 (30), 2.667 (30), 4.555 (25), 4.233 (25), 2.985 (25)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td>25.2</td>
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<tr>
<td>Tl</td>
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<td>Cu</td>
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<td>Ag</td>
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<tr>
<td>As</td>
<td>20.5</td>
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<td>S</td>
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<tr>
<td>Total</td>
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<td>100.00</td>
</tr>
</tbody>
</table>

(1) Binntal, Switzerland; by electron microprobe. (2) PbTlCuAs\(_2\)S\(_5\).

Occurrence:  Overgrowing other lead sulfosalts.

Association:  Dufrénoysite, rathite, pyrite.

Distribution:  In Switzerland, at the Lengenbach quarry, Binntal, Valais.

Name:  For Wallis, the German name for the Swiss Canton in which the Lengenbach quarry is located.

Type Material:  Mineralogical-Petrographical Institute, University of Bern, Bern, Switzerland, L2533-63.

References:  