Aleksite

\[
PbBi_2Te_2S_2
\]

Crystal Data:  Hexagonal.  Point Group:  \( \overline{3} 2/m \).  Platy grains, to 1 mm.

Physical Properties:  Cleavage:  Perfect on \{0001\}.  Hardness = n.d.  VHN = 40–65, 51 average (20 g load).  \( D(\text{meas.}) = \text{n.d.} \)  \( D(\text{calc.}) = 7.57 \)


R:  (400) —, (420) —, (440) —, (460) 51.4, (480) 51.8, (500) 52.7, (520) 52.8, (540) 53.2, (560) 53.1, (580) 53.4, (600) 53.9, (620) 53.9, (640) 54.2, (660) 54.5, (680) 54.4, (700) 54.9

Cell Data:  \( F\overline{3}m1 \).  \( a = 4.2423(25) \)  \( c = 79.73(5) \)  \( Z = 6 \)

X-ray Powder Pattern:  Aleksiev mine, Russia.

3.09 (100), 2.12 (60), 2.25 (40), 1.348 (40), 1.307 (40), 3.63 (30), 1.974 (30)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td>20.3</td>
<td>20.5</td>
<td>21.94</td>
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<tr>
<td>Bi</td>
<td>46.0</td>
<td>45.5</td>
<td>44.25</td>
</tr>
<tr>
<td>Te</td>
<td>27.3</td>
<td>27.3</td>
<td>27.02</td>
</tr>
<tr>
<td>S</td>
<td>6.3</td>
<td>6.3</td>
<td>6.79</td>
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<tr>
<td>Total</td>
<td>99.9</td>
<td>99.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

(1) Aleksiev mine, Russia; by electron microprobe, leading to \( \text{Pb}_{0.94}\text{Bi}_{2.11}\text{Te}_{2.06}\text{S}_{1.89} \).  (2) Do.; leading to \( \text{Pb}_{0.96}\text{Bi}_{2.10}\text{Te}_{2.06}\text{S}_{1.89} \).  (3) \( \text{PbBi}_2\text{Te}_2\text{S}_2 \).

Occurrence:  Of hydrothermal origin in sulfide-quartz veins (Aleksiev mine, Russia).

Association:  Galena, gold, altaite, tetradymite, tsumoite, rucklidgeite, quartz (Aleksiev mine, Russia).

Distribution:  From the Aleksiev gold mine, Sutam district, Stanovoi Range, southeast Sakha, Russia [TL].  In the San-notake district, Fukuoka Prefecture, Japan.  At the St. David's mine, Dolgellau district, Wales.  In the Ardino deposit, Bulgaria.  From near Tybo, Nye Co., Nevada, USA.  In the Barringer mine, Timmins, Ontario, Canada.  From the Corrego Criminoso gold mining district, Goias, Brazil.

Name:  For the Aleksiev mine, Russia.

Type Material:  Gosudarst University, Moscow; Moscow University, Moscow; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 79060.