**Lenaite**  \( \text{AgFeS}_2 \)

**Crystal Data:** Tetragonal.  \*Point Group:* 4 2m.  As equant grains, to 0.2 mm.

**Physical Properties:** *Cleavage:* None.  Hardness = 4-4.5  VHN = 270-360, 310 average (10 g load).  
\( D(\text{meas.}) = \text{n.d.} \quad D(\text{calc.}) = 4.72 \)

**Optical Properties:** Opaque.  \*Color:* Steel-gray; cream with grayish tint in reflected light.  
\*Streak:* Black.  \*Luster:* Metallic.

**Optical Class:** Uniaxial.  \*Anisotropism:* Moderate, yellow tints.

**Cell Data:** Space Group: \( \text{I}4 \text{d} \).  
\( a = 5.4371(2) \quad c = 10.8479(9) \quad Z = 4 \)

**X-ray Powder Pattern:** Khachakchansky deposit, Russia.  

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ag</td>
<td>46.58</td>
<td>45.86</td>
<td>47.34</td>
</tr>
<tr>
<td>Hg</td>
<td>0.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fe</td>
<td>24.08</td>
<td>24.97</td>
<td>24.51</td>
</tr>
<tr>
<td>S</td>
<td>28.86</td>
<td>28.53</td>
<td>28.15</td>
</tr>
<tr>
<td>Total</td>
<td>99.8</td>
<td>99.36</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Khachakchansky deposit, Russia; by electron microprobe, average of 22 analyses; corresponds to \( \text{Ag}_0.98\text{Fe}_{0.98}\text{S}_2 \).  (2) Gies deposit, Montana, USA; average of 6 electron microprobe analyses, corresponds to \( \text{Ag}_{0.96}\text{Fe}_{1.01}\text{S}_2 \).  (3) \( \text{AgFeS}_2 \).

**Occurrence:** In goethite pseudomorphs after magnesian siderite, in quartz-siderite veins (Russia); in an epithermal gold-silver telluride vein deposit (Gies deposit, Montana).

**Association:** Acanthite, stephanite, Ag-Hg amalgam, chalcopyrite, tetrahedrite, galena, goethite (Russia); hessite, imiterite, proustite, tetrahedrite, tennantite, chalcopyrite, pyrite (Gies deposit, Montana).

**Distribution:** From the Khachakchansky Ag-Pb deposit, near the Lena River, eastern Sakha, Russia [TL].  From the Gies gold-silver telluride deposit, Judith Mountains, Montana, USA.

**Name:** For its occurrence near the Lena River, Russia.

**Type Material:** Geological Museum, Yakutsk Scientific Center, Academy of Sciences, Yakutsk, Russia.

**References:**  