Berthierite  \( \text{FeSb}_2\text{S}_4 \)

**Crystal Data:** Orthorhombic.  
*Point Group:* \( 2/m \ 2/m \ 2/m \).  
Prismatic crystals elongated and striated \( \| [001] \), to 1 cm, typically unterminated; fibrous, plumose or radial, brushes to 6 cm; granular, massive.

**Physical Properties:**  
*Cleavage:* Prismatic, indistinct.  
*Tenacity:* Brittle.  
*Hardness* = 2–3  
\( \text{VHN} = \text{n.d.} \)  
\( D(\text{meas.}) = 4.64 \)  
\( D(\text{calc.}) = 4.68 \)

**Optical Properties:** Opaque.  
*Color:* Dark steel-gray, commonly tarnished iridescent or pinchbeck-brown; in polished section, gray.  
*Streak:* Dark brownish gray.  
*Luster:* Metallic.  
*Pleochroism:* Marked.  
*Anisotropism:* Strong.

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fe</td>
<td>13.43</td>
<td>13.06</td>
</tr>
<tr>
<td>Mn</td>
<td>trace</td>
<td></td>
</tr>
<tr>
<td>Sb</td>
<td>56.06</td>
<td>56.95</td>
</tr>
<tr>
<td>S</td>
<td>29.46</td>
<td>29.99</td>
</tr>
<tr>
<td>insol.</td>
<td>0.33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>99.28</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Herja, Romania; corresponds to \( \text{Fe}_{1.05}\text{Sb}_{2.01}\text{S}_{4.00} \).  
(2) \( \text{FeSb}_2\text{S}_4 \).

**Occurrence:** In low-temperature hydrothermal antimony veins, in portions deficient in sulfur.

**Association:** Stibnite, arsenopyrite, pyrite, barite, calcite, quartz.

**Distribution:** Localities are numerous.  
In France, from Chazelles, Auvergne [TL], Pontgibaud, Puy-de-Dôme, and Valcros, Provence.  
At Herja (Kisbánya), Baia Mare (Nagybányá) district, and Baia Sprie (Felsőbányá), Romania.  
From Příbram and Kutná Hora, Czech Republic.  
At Bräunsdorf, near Freiberg, Saxony, Germany.  
From Ribnovo, southern Rhodope Mountains, Bulgaria.  
In the Niccioleta mine, Tuscany, Italy.  
In Mexico, from San Martín, Concepción del Oro, Zacatecas; and from mines near Triunfo, Baja California.  
At Chashan, Guangxi Province, China.  
[ck??Japan??]

**Name:** For Pierre Berthier (1782–1861), French chemist.

**Type Material:** n.d.

**References:**  
Econ. Geol., 66, 121–132.  
Acta Cryst., C47, 938–940 (in French with English abs.).  

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