Playfairite Pb₁₆Sb₁₈S₄₃

Crystal Data: Monoclinic. Point Group: 2, m, or 2/m. Tabular crystals heavily striated parallel to elongation. Twinning: Exhibits very fine twin lamellae.

Physical Properties: Cleavage: {100}, perfect. Hardness = n.d. VHN = 154 (50 g load). D(meas.) = n.d. D(calc.) = 5.72


Cell Data: Space Group: P2₁, Pm, P2₁/m, P2₁ or P2₁/m. a = 45.4 b = 8.29 c = 21.3 β = 92°30(30)′ Z = 4

X-ray Powder Pattern: Madoc, Canada. 3.39 (100), 3.32 (100), 2.785 (70), 2.086 (60), 3.98 (40), 3.49 (40), 2.97 (40)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<tbody>
<tr>
<td>Pb</td>
<td>51.0</td>
<td>47.2</td>
<td>50.7</td>
<td>48.15</td>
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<tr>
<td>Sb</td>
<td>28.0</td>
<td>28.2</td>
<td>26.3</td>
<td>31.83</td>
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<td>As</td>
<td>2.4</td>
<td>2.8</td>
<td>3.3</td>
<td></td>
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<tr>
<td>S</td>
<td>18.8</td>
<td>20.3</td>
<td>21.3</td>
<td>20.02</td>
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<tr>
<td>Cl</td>
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<tr>
<td>Total</td>
<td>100.2</td>
<td>98.68</td>
<td>101.6</td>
<td>100.00</td>
</tr>
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</table>

(1) Madoc, Canada; by electron microprobe, average of three analyses, corresponding to Pb₁₇.₃₂(Sb₁₆.₈₈As₂.₂₅)Σ=1₈.₄₃S₄₁.₂₅. (2) Do.; by electron microprobe, corresponding to Pb₁₅.₄₆(Sb₁₅.₇₁As₂.₄₅)Σ=1₅.₂₅Cl₀.₃₄S₄₂.₉₅. (3) Novoye, Kyrgyzstan; by electron microprobe; corresponding to Pb₁₆.₁₂(Sb₁₄.₃₃As₂.₉₀)Σ=1₇.₁₃S₄₅.₇₅. (4) Pb₁₆Sb₁₈S₄₃.

Occurrence: As masses and stringers through dolomitic and calcitic marbles. At the edges of other sulfosalt minerals, and extending into them along microscopic veinlets.

Association: Boulangerite, jamesonite, antimonian baumhauerite, zinkenite, sensenyite, geocronite, ro宾sonite, madocite, lamayiite (Madoc, Canada); sphalerite, pyrite, galena, sorbyite, twinnite, guettardite, baumhauerite, realgar, orpiment, cinnabar, fluorite, quartz (Novoye, Kyrgyzstan).


Name: In honor of John Playfair (1748–1819), Professor of Natural Philosophy, Edinburgh, Scotland.

Type Material: Canadian Geological Survey, Ottawa, 12168; Canadian Museum of Nature, Ottawa, Canada.


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