Laflammeite  

\( \text{Pd}_3\text{Pb}_2\text{S}_2 \)

Crystalllographic Data:  
Monoclinic.  

- **Point Group:** 2/m.  
- As euhedral to subhedral platelets, to 0.3 mm, and as intergrowths with vysotskite–braggite.  
- **Twinning:** Finely twinned.

Physical Properties:  
- **Cleavage:** Perfect on \{010\}.  
- **Tenacity:** Brittle.  
- **Hardness:** \( \sim 3.5 \)  
- **VHN:** 156–185, 171 average (50 g load).  
- **D(meas.):** n.d.  
- **D(calc.):** 9.41

Optical Properties:  
- **Opaque.**  
- **Color:** Cream with a brownish tint in reflected light.  
- **Streak:** Dark gray.  
- **Luster:** Metallic.  
- **Anisotropism:** Weak; brownish gray to grayish brown.  
- **Bireflectance:** Weak.

Cell Data:  
- **Space Group:** C2/m (by analogy to parkerite).  
- **Cell Parameters:**  
  
  \[
  a = 11.521(11) \quad b = 8.294(10) \\
  c = 8.321(6) \quad \beta = 134.38(5)^\circ \\
  Z = 4
  \]

X-ray Powder Pattern:  
- Karkkkajuppura deposit, Finland.  
- 4.144 (10), 2.917 (9), 2.413 (8), 2.365 (7), 5.953 (6), 2.082 (5), 3.379 (3)

Chemistry:  
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pd</td>
<td>39.46</td>
<td>40.02</td>
</tr>
<tr>
<td>Ir</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>Pb</td>
<td>52.01</td>
<td>51.94</td>
</tr>
<tr>
<td>S</td>
<td>7.90</td>
<td>8.04</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.15</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Karkkkajuppura deposit, Finland; by electron microprobe, average of 26 analyses on two grains; corresponds to \( \text{Pd}_{3.96}\text{Ir}_{0.05}\Sigma=3.01\text{Pb}_{2.02}\text{S}_{1.98} \).  

Occurrence:  
In a platinum-group-element deposit in a layered ultramafic intrusive complex, formed under relatively high-Pb, low-S conditions.

Association:  
Vysotskite, zvyagintsevite, cuprorhodsite–malanite, laurite–erlichmanite, irarsite, keithconnite, gold, chalcopyrite, bornite, millerite.

Distribution:  
From the Karkkkajuppura deposit, Penikat layered complex, northeast of Kemi, Finland [TL].

Name:  
In honor of Joseph Hector Gilles Laflamme (1947–), Canada Centre for Mineral and Energy Technology (CANMET), Ottawa, Canada, for his work on platinum-group minerals.

Type Material:  
Canadian Museum of Nature, Ottawa, Canada, 83195.

References:  
(2) (?) Amer. Mineral., ??, ?? (abs. ref. 1).

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