**Miyahisaite**

[(Sr,Ca)₂Ba₃(PO₄)₃F]

**Crystal Data:** Hexagonal.  *Point Group: 6/m.* As irregular grains to 10 μm.

**Physical Properties:**  
- *Cleavage:* n.d.  
- *Fracture:* n.d.  
- *Tenacity:* n.d.  
- *Hardness:* = 5  
- *D(meas.)* = n.d.  
- *D(calc.)* = 4.511

**Optical Properties:**  
- Transparent.  
- *Color:* Colorless.  
- *Streak:* White.  
- *Luster:* Vitreous.  
- *Optical Class:* n.d.

**Cell Data:**  
- *Space Group:* P6₃/m.  
- a = 9.921(2), c = 7.469(3)  
- Z = 2

**X-ray Powder Pattern:** Shimoharai mine, Oita Prefecture, Japan.  
2.981 (100), 1.976 (23), 3.248 (22), 2.865 (21), 1.864 (17), 3.427 (16), 1.874 (16)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaO</td>
<td>4.69</td>
<td></td>
</tr>
<tr>
<td>SrO</td>
<td>16.51</td>
<td>23.25</td>
</tr>
<tr>
<td>BaO</td>
<td>52.05</td>
<td>51.62</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>24.85</td>
<td>23.89</td>
</tr>
<tr>
<td>F</td>
<td>1.99</td>
<td>2.13</td>
</tr>
<tr>
<td>Cl</td>
<td>0.06</td>
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</tr>
<tr>
<td>-O = Cl+F</td>
<td>0.85</td>
<td>-0.90</td>
</tr>
<tr>
<td>H₂O</td>
<td>[0.09]</td>
<td></td>
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<tr>
<td>Total</td>
<td>99.39</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Shimoharai mine, Oita Prefecture, Japan; average of 4 electron microprobe analyses, H₂O calculated for charge balance; corresponding to (Sr₁.366Ca₀.717)₂₋₂.₀₆₆Ba₂.₉₉₁P₃.₀₀₂O₁₂(F₀.₈₉₈OH₀.₀₈₈Cl₀.₀₁₄)₂₋₁.  
(2) Sr₂Ba₃(PO₄)₃F.

**Mineral Group:** Hedyphane subgroup of the apatite group.

**Occurrence:** In a metamorphosed (low grade) bedded Mn and chert deposit.

**Association:** Fluorapatite, namansilite, quartz.

**Distribution:** From the Shimoharai mine, Yayoi Udoki area, Saiki City, Oita Prefecture, Japan.

**Name:** Honors Michitoshi Miyahisa (1928-1983) for his contribution to the study of ore deposits on Kyushu.

**Type Material:** National Museum of Nature and Science, Tokyo, Japan (NSMM-41299).

**References:**  