Itsiite

\[ \text{Ba}_2\text{Ca(BSi}_2\text{O}_7)\text{_}2 \]

**Crystal Data:** Tetragonal.  \( \text{Point Group: } \overline{4} \ 2 \text{m}. \) As platy crystals to 1 mm, flattened on \{001\} and exhibiting \{001\}, \{101\}, and \{112\}, with \{101\} and \{112\} often striated.

**Physical Properties:**  
* Cleavage: Perfect on \{001\}.  
* Fracture: Splintery.  
* Tenacity: Brittle.  

\( \text{Hardness} = 5.5 \quad \text{D(meas.)} = \text{n.d.} \quad \text{D(calc.)} = 3.644 \)

**Optical Properties:**  
* Transparent.  
* Color: Colorless, light blue to medium greenish blue.  
* Streak: White.  
* Luster: Vitreous.  
* Pleochroism: None.  

**Optical Class:** Uniaxial (−).  
\( \omega = 1.623(1) \quad \varepsilon = 1.619(1) \)

**Cell Data:**  
* Space Group: \( \overline{4} \ 2 \text{m} \).  
* \( a = 10.9515(5) \quad c = 10.3038(7) \quad Z = 4 \)

**X-ray Powder Pattern:** Gun claim, near the Itsi Range, Yukon Territory, Canada.  
3.746 (100), 2.899 (96), 2.145 (69), 3.446 (60), 3.100 (51), 2.279 (44), 1.7584 (43)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{Na}_2\text{O} )</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>( \text{BaO} )</td>
<td>46.35</td>
<td>45.59</td>
</tr>
<tr>
<td>( \text{CaO} )</td>
<td>7.35</td>
<td>8.34</td>
</tr>
<tr>
<td>( \text{FeO} )</td>
<td>0.15</td>
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</tr>
<tr>
<td>( \text{Al}_2\text{O}_3 )</td>
<td>0.17</td>
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<tr>
<td>( \text{TiO}_2 )</td>
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</tr>
<tr>
<td>( \text{SiO}_2 )</td>
<td>34.91</td>
<td>35.73</td>
</tr>
<tr>
<td>( \text{B}_2\text{O}_3 )</td>
<td>[10.41]</td>
<td>10.35</td>
</tr>
<tr>
<td>Total</td>
<td>99.46</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Gun claim, Yukon Territory, Canada; average of 3 electron microprobe analyses, presence of B was confirmed by EMPA, \( \text{B}_2\text{O}_3 \) calculated from crystal structure refinement; corresponding to \( \text{Ba}_{2.06}(\text{Ca}_{0.89}\text{Al}_{0.02}\text{Na}_{0.01}\text{Fe}_{0.01}\text{Ti}_{0.01})\text{Σ=0.94(Si}_{3.96}\text{B}_{2.04}\text{_}\text{Σ=6.00O}_{14}. \)  

(2) \( \text{Ba}_2\text{Ca(BSi}_2\text{O}_7)\text{_}2 \).

**Occurrence:** In low-temperature, late-stage hydrothermal veins cutting a contact-metamorphic, Ba-rich skarn deposit adjacent to quartz monzonite.

**Association:** Cerchiaraite-(Fe), diopside, pyrite, quartz, sphalerite, witherite.

**Distribution:** From the Gun claim, 4 km SE of Wilson Lake, south of the Itsi Range, Yukon Territory, Canada.

**Name:** For the Itsi Mountain Range, which gets its name from the language of the Kaska, a First Nations people of the area (“itsi” means “wind”).

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA. (#64072).

**References:**  