Bohseite

\[ \text{Ca}_4\text{Be}_4\text{Si}_4\text{O}_{24}(\text{OH})_4 \]

**Crystal Data:** Orthorhombic (Monoclinic optical properties).  
*Point Group:* 2/m 2/m 2/m.
As fan-like or parallel aggregates (to 0.7 cm) of platy striated crystals to 2 mm.

**Physical Properties:** 
- **Cleavage:** Perfect on {001}, fair on {010}.  
- **Fracture:** Splintery.
- **Tenacity:** Brittle.  
- **Hardness:** 5-6
- **D(meas.)** = n.d.
- **D(calc.)** = 2.719

**Optical Properties:**
- **Translucent.**  
- **Color:** White.  
- **Streak:** White.  
- **Luster:** Vitreous.  
- **Optical Class:** Biaxial (+).
- \( a = 1.579(2) \)  
- \( \beta = 1.580(2) \)  
- \( \gamma = 1.597(2) \)
- \( 2V(\text{meas.}) = 24(3)^\circ \)
- \( 2V(\text{calc.}) = 27^\circ \)
- **Dispersion:** Weak, \( r < v. \)
- **Orientation:** \( X^\parallel a = 16^\circ, Y^\parallel b = 16^\circ, Z^\parallel c. \)

**Cell Data:**
- **Space Group:** Cmcm.  
- \( a = 23.204(6) \)  
- \( b = 4.9442(9) \)  
- \( c = 19.418(6) \)
- \( Z = 4 \)

**X-ray Powder Pattern:** Calculated pattern.
- \( 3.334(100), 3.723(51), 3.385(44), 4.166(38), 3.027(37), 2.553(31), 2.553(31), 3.236(28) \)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>58.83</td>
<td>57.41</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>3.51</td>
<td>3.51</td>
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<tr>
<td>CaO</td>
<td>24.61</td>
<td>23.75</td>
</tr>
<tr>
<td>Na₂O</td>
<td>0.07</td>
<td>0.18</td>
</tr>
<tr>
<td>F₂</td>
<td>0.45</td>
<td>0.55</td>
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<tr>
<td>BeO</td>
<td>[9.31]</td>
<td>[9.07]</td>
</tr>
<tr>
<td>H₂O</td>
<td>[3.12]</td>
<td>[3.05]</td>
</tr>
<tr>
<td>- O = F₂</td>
<td>0.19</td>
<td>0.23</td>
</tr>
<tr>
<td>Total</td>
<td>99.71</td>
<td>97.29</td>
</tr>
</tbody>
</table>

(1) Piława Górna quarry, ~50 km southwest of Wroclaw, Poland; average of 17 electron microprobe analyses supplemented by FTIR spectroscopy, BeO and H₂O calculated so that Be = 13 – (Si+Al) and Ca+Na = Al+Be; corresponding to \((\text{Ca}_{4.02}\text{Na}_{0.02})_{2-4.04}(\text{Be}_{3.41}\text{Al}_{0.59})_{2-4.06}(\text{Si}_{8.96}\text{Al}_{0.04})_{2-4.06}\text{O}_{24.22}\) \([(\text{OH})_{3.1}]\text{F}_{0.22}\text{O}_{0.61}][\text{F}_{4.04}]. \)

(2) Piława Górna quarry, ~50 km southwest of Wroclaw, Poland; average of 10 electron microprobe analyses supplemented by FTIR spectroscopy, BeO and H₂O calculated so that Be = 13 – (Si+Al) and Ca+Na = Al+Be; corresponding to \((\text{Ca}_{3.97}\text{Na}_{0.05})_{2-4.02}(\text{Be}_{3.40}\text{Al}_{0.60})_{2-4.00}\) \((\text{Si}_{8.96}\text{Al}_{0.04})_{2-4.00}\text{O}_{24.27}[(\text{OH})_{3.1}]\text{F}_{0.27}\text{O}_{0.56}][\text{F}_{4.04}]. \)

**Polymorphism & Series:** Forms a series with bavenite.

**Occurrence:** In strongly fractionated parts of zoned anatectic (NYF-LCT) pegmatite dikes that cut amphibolite.

**Association:** Microcline, Cs-rich beryl, phenakite, helvite, lepidolite, bertrandite (Poland).

**Distribution:** From the Piława Górna quarry, eastern part of the Góry Sowie Block, NE part of the Bohemian massif, ~50 km southwest of Wroclaw, Poland and from the Ilímaussaq alkaline complex, South Greenland.

**Name:** Honors the Danish geologist Hennning Bohse (b. 1942) who has worked for more than 40 years on the mineralogy and geology of the Ilímaussaq alkaline complex.

**Type Material:** Mineralogical Museum, University of Wroclaw, Poland (MMUWr IV7678 and IV7679) and the Natural History Museum, Copenhagen, Denmark (GM 1995.32).

**References:**