Bigcreekite

**BaSi$_2$O$_5$·4H$_2$O**

**Crystal Data:** Orthorhombic.  *Point Group: 2/m 2/m 2/m.* As tabular crystals elongated along [100], to several mm.

**Physical Properties:** *Cleavage:* Perfect on {001} and {010}.  *Fracture:* Uneven.  *Tenacity:* Brittle.  *Hardness:* 2-3  *D*(meas.) = 2.66(3)  *D*(calc.) = 2.76

**Optical Properties:** Translucent.  *Color:* White to colorless.  *Streak:* White.  *Luster:* Vitreous to pearly.  *Optical Class:* Biaxial (+).  *α = 1.537(2)  β = 1.538(2)  γ = 1.541(2)  2V(meas.) = 59.2(5)°  2V(calc.) = 60°  *Dispersion:* moderate;  *r* < *v*.  *Pleochroism:* None.  *Orientation:* *X* = *b*, *Y* = *a*, *Z* = *c.*

**Cell Data:** Space Group: *Pnma.*  
*a* = 5.0453(8)  
*b* = 9.044(1)  
*c* = 18.366(5)  
*Z* = 4

**X-ray Powder Pattern:** Big Creek, Fresno County, California, USA.  
5.068 (100), 4.054 (85), 2.257 (75), 2.706 (60), 2.974 (45), 2.327 (40), 9.19 (30)

**Chemistry:**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Na$_2$O</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>CaO</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>SrO</td>
<td>0.02</td>
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<tr>
<td>BaO</td>
<td>48.88</td>
<td>44.37</td>
</tr>
<tr>
<td>SiO$_2$</td>
<td>38.16</td>
<td>34.78</td>
</tr>
<tr>
<td>H$_2$O</td>
<td>[22.94]</td>
<td>20.85</td>
</tr>
<tr>
<td>Total</td>
<td>110.14</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Big Creek, Fresno County, California, USA; average of 4 electron microprobe analyses supplemented by IR spectroscopy, H$_2$O calculated from stoichiometry; corresponding to Ba$_{1.00}$Na$_{0.01}$Si$_{2.00}$O$_{5.95}$H$_{2.05}$O.  
(2) BaSi$_2$O$_5$·4H$_2$O.

**Occurrence:** Filling fractures in gneiss near the margins of a granodiorite pluton.

**Association:** Sanbornite, quartz, diopside, pyrrhotite.

**Distribution:** From the Esquire #7 claim, west side of Big Creek, eastern Fresno County, and on the northwestern slope of Trumbull Peak, Mariposa County, California, USA.

**Name:** For the locality that provided the first specimens, Big Creek, California, USA.

**Type Material:** M.Y. Williams Museum, University of British Columbia, Vancouver, British Columbia, Canada.