Ganterite

\([\text{Ba}_{0.5}(\text{Na,K})_{0.5}]\text{Al}_2(\text{Si}_{2.5}\text{Al}_{1.5}\text{O}_{10})(\text{OH})_2\]

**Crystal Data:** Monoclinic.  
*Point Group:* 2/m.  
As tabular lamellae to 0.5 mm.

**Physical Properties:**  
*Cleavage:* Perfect on \{001\}.  
*Fracture:* Laminated.  
*Tenacity:* Flexible.  
*Hardness:* 4-4.5  
*VHN:* 260 (100 g load).  
*D(meas.):* n.d.  
*D(calc.):* 3.11

**Optical Properties:**  
*Color:* Light gray to silvery, colorless in transmitted light.  
*Streak:* White.  
*Luster:* Vitreous.  
*Optical Class:* Biaxial (-).  
*\(\alpha\)* (calc.): 1.600  
*\(\beta\)*: 1.619  
*\(\gamma\)*: 1.622  
*2V(meas.):* 42° - 45°  
*Dispersion:* Weak.

**Cell Data:**  
*Space Group:* C2/c.  
*\(a\)* = 5.212(1)  
*\(b\)* = 9.046(2)  
*\(c\)* = 19.978(4)  
*\(\beta\)* = 95°48'  
*Z* = 4

**X-ray Powder Pattern:** Berisal complex, Wasenhorn, Simplon region, Switzerland.  
2.571 (100), 2.602 (95), 1.5054 (91), 3.737 (77), 3.887 (76), 4.481 (71), 3.495 (71)

**Chemistry:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Mass Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaO</td>
<td>15.54</td>
</tr>
<tr>
<td>CaO</td>
<td>0.03</td>
</tr>
<tr>
<td>Na₂O</td>
<td>1.91</td>
</tr>
<tr>
<td>K₂O</td>
<td>3.02</td>
</tr>
<tr>
<td>MgO</td>
<td>0.86</td>
</tr>
<tr>
<td>FeO</td>
<td>0.69</td>
</tr>
<tr>
<td>MnO</td>
<td>0.03</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>36.5</td>
</tr>
<tr>
<td>SiO₂</td>
<td>37.47</td>
</tr>
<tr>
<td>TiO₂</td>
<td>0.73</td>
</tr>
<tr>
<td>H₂O</td>
<td>3.90</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.68</strong></td>
</tr>
</tbody>
</table>

*(1)* Berisal complex, Wasenhorn, Simplon region, Switzerland; average of 32 electron microprobe analyses supplemented by IR spectroscopy, H₂O by TGA; corresponding to \((\text{Ba}_{0.44}\text{K}_{0.28}\text{Na}_{0.27})\text{Σ}=0.99\) \((\text{Al}_{1.84}\text{Mg}_{0.09}\text{Fe}_{0.04}\text{Ti}_{0.04})\text{Σ}=2.01\) \([\text{Si}_{2.72}\text{Al}_{1.28}\text{O}_{10}](\text{OH})_{1.89}\).

**Mineral Group:** Mica group.

**Polymorphism & Series:**  
2\(\text{M}_1\) polytype, dioctahedral; forms a series with muscovite.

**Occurrence:** A rock forming mineral in bands and lenses of white-mica schists and in zoisite–celsian gneiss.

**Association:** Muscovite, zoisite, quartz, plagioclase, apatite, zircon, amphibole (schist); zoisite, celsian, quartz, margarite ± armenite (gneiss); dumortierite, barite, muscovite (Nevada).

**Distribution:** From the Berisal complex, Wasenhorn, Simplon region, Switzerland. In the USA, from Lincoln Hill, near Oreana, Nevada.

**Name:** For Gantertal, a valley in the Simplon region that produced the first specimens.

**Type Material:** At the Natural History Museum and the Mineralogical Institute, University of Basel, Switzerland.

**References:**  
(3) Chi Ma and G.R. Rossman (2006) Ganterite, the barium mica \(\text{Ba}_{0.5}\text{K}_{0.5}\text{Al}_2(\text{Al}_{1.5}\text{Si}_{2.5}\text{O}_{10})(\text{OH})_2\), from Oreana, Nevada.  
Amer. Mineral., 91, 702-705.