Larderellite

\((\text{NH}_4)\text{B}_5\text{O}_7(\text{OH})_2\cdot\text{H}_2\text{O}\)

©2001-2005 Mineral Data Publishing, version 1

Crystal Data: Monoclinic. Point Group: 2/m. Crystals are rhombic, flattened on \{001\}, to 0.1 mm; typically powdery.

Physical Properties: Cleavage: On \{100\}, \{010\}, perfect. Hardness = n.d.
D(meas.) = 1.905(4) D(calc.) = 1.887

Optical Class: Biaxial (+). Orientation: \(y = b; z \wedge c \simeq 15^\circ\). Dispersion: \(r > v\) or \(r < v\).
\(\alpha = 1.493(1)\) \(\beta = 1.509(1)\) \(\gamma = 1.561(1)\) \(2V(\text{meas.}) = 58^\circ\)

Cell Data: Space Group: \(P2_1/a\). \(a = 11.63–11.65\) \(b = 7.615–7.63\) \(c = 9.447–9.47\)
\(\beta = 96^\circ 45'–97^\circ 05'\) \(Z = 4\)

X-ray Powder Pattern: Larderello, Italy.
4.70 (100), 2.921 (100), 2.887 (100), 5.44 (71), 2.960 (71), 9.45 (50), 5.12 (50)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{B}_2\text{O}_3)</td>
<td>71.64</td>
<td>68.49</td>
</tr>
<tr>
<td>(\text{(NH}_4\text{)}_2\text{O})</td>
<td>9.93</td>
<td>10.24</td>
</tr>
<tr>
<td>(\text{H}_2\text{O})</td>
<td>[18.43]</td>
<td>21.27</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Larderello, Italy; average of four analyses, \(\text{H}_2\text{O}\) by difference. (2) \((\text{NH}_4)\text{B}_5\text{O}_7(\text{OH})_2\cdot\text{H}_2\text{O}\).

Occurrence: In boric-acid-rich fumarolic lagoons.

Association: Sassolite, ammonioborite, santite.

Distribution: From Larderello, Val di Cecina, Tuscany, Italy.

Name: Honoring Francesco de Larderel (1848–1925), principal operator of the Tuscan borax works.

Type Material: Natural History Museum, Paris, France, 100.1384, 100.1386, 100.1388.