Celsian

Crystal Data: Monoclinic. Point Group: 2/m. As short prismatic to acicular crystals with large prism faces, to 2 cm; commonly massive. Twinning: Simple twins according to the Manebach, Baveno, or Carlsbad laws.

Physical Properties: Cleavage: Perfect on {001}, good on {010}, and poor on {110}. Tenacity: Brittle. Hardness = 6–6.5 D(meas.) = 3.10–3.39 D(calc.) = 3.26


Cell Data: Space Group: I2/c. a = 8.622(4) b = 13.078(6) c = 14.411(8) β = 115.09(2)° Z = 8

X-ray Powder Pattern: Jakobsberg, Sweden. 3.47 (100), 3.35 (100), 3.02 (95), 2.582 (75), 3.26 (60), 3.80 (55), 6.52 (50)

Chemistry:

<table>
<thead>
<tr>
<th>SiO₂</th>
<th>Al₂O₃</th>
<th>Fe₂O₃</th>
<th>MgO</th>
<th>CaO</th>
<th>BaO</th>
<th>Na₂O</th>
<th>K₂O</th>
<th>F</th>
<th>H₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>32.43</td>
<td>26.55</td>
<td>0.12</td>
<td>0.11</td>
<td>0.23</td>
<td>39.72</td>
<td>0.16</td>
<td>0.22</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>31.07</td>
<td>28.35</td>
<td>0.36</td>
<td>0.23</td>
<td>0.22</td>
<td>39.92</td>
<td>0.64</td>
<td>0.24</td>
<td>0.64</td>
<td>0.64</td>
</tr>
<tr>
<td>32.00</td>
<td>27.16</td>
<td></td>
<td></td>
<td></td>
<td>40.84</td>
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</tr>
</tbody>
</table>

Total 100.82 [99.94] 100.00

(1) Jakobsberg, Sweden. (2) Aberfeldy, Scotland; by electron microprobe; original total given as 99.99%. (3) BaAl₂Si₂O₈.

Polymorphism & Series: Dimorphous with paracelsian; forms a series with orthoclase.

Mineral Group: Feldspar group.

Occurrence: In amphibolite-grade, regional or contact metamorphic, Mn, Ba-rich rocks, some of which probably were submarine exhalatives.

Association: Manganoan aegirine, manganoan biotite, paracelsian, jacobsite, hausmannite, rhodochrosite, rhodonite, rutile, hyalophane, barite, cymrite, taramellite, quartz, zoisite, spessartine, dolomite, muscovite.

Distribution: At Jakobsberg and Långban, Värmland, Sweden. In the Simplon region, Valais, Switzerland. In the USA, from Franklin, Sussex Co., New Jersey; near Big Creek, Fresno Co., and Trumbull Peak, near Incline, Mariposa Co., California. At the Benallt mine, Rhiw, Lleyn Peninsula, Wales. From near Aberfeldy, Scotland. In Kazakhstan, from the Burultur deposit, west of Lake Balkhash. In Namibia, at Otjosondu. From Piggery Creek, Broken Hill, New South Wales, Australia. In the Kaso mine, Totoki Prefecture, Japan.

Name: To honor the Swedish astronomer and naturalist, Anders Celsius (1701–1744).


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