Analcime NaAlSi$_2$O$_6$•H$_2$O

Crystal Data: Cubic; tetragonal, orthorhombic, or monoclinic, pseudocubic, with degree of ordering. Point Group: 4/m 3 2/m; 4/m 2/m 2/m, 2/m 2/m 2/m, or 2/m. Crystals commonly trapezohedra {211}, to 25 cm. Also granular, compact, massive, typically showing concentric structure. Twinning: Polysynthetic on {001}, {110}.


Optical Properties: Transparent to translucent. Color: White, colorless, gray, pink, greenish, yellowish; in thin section, colorless. Luster: Vitreous. Optical Class: Isotropic; anomalously biaxial (-). n = 1.479–1.493 2V(meas.) = 0°–85°


X-ray Powder Pattern: Láven Island, Langesundsfjord, Norway. 3.43 (10), 5.61 (8), 2.925 (8), 1.743 (6), 2.693 (5), 2.505 (5), 1.903 (5)

Chemistry: (1) (2) (3) (4) (5) (6) (7)

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<tr>
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<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
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<tbody>
<tr>
<td>SiO$_2$</td>
<td>54.19</td>
<td>54.58</td>
<td>54.58</td>
<td>Na$_2$O</td>
<td>11.08</td>
<td>13.50</td>
<td>14.08</td>
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<tr>
<td>Al$_2$O$_3$</td>
<td>23.12</td>
<td>23.05</td>
<td>23.16</td>
<td>K$_2$O</td>
<td>1.62</td>
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<tr>
<td>MgO</td>
<td>0.10</td>
<td>0.10</td>
<td></td>
<td>H$_2$O$^+$</td>
<td>8.20</td>
<td>8.70</td>
<td>8.18</td>
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<td>CaO</td>
<td>1.54</td>
<td>0.45</td>
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Total 99.85 100.38 100.00

(1) Cyclopean Islands, Italy. (2) Mazé, Niigata Prefecture, Japan. (3) NaAlSi$_2$O$_6$•H$_2$O.

Polymorphism & Series: Forms a series with pollucite.

Mineral Group: Zeolite group.

Occurrence: In the groundmass or vesicles of silica-poor intermediate and mafic igneous rocks, typically basalts and phonolites, from late-stage hydrothermal solutions, or disseminated due to deuteric alteration. In lake beds, altered from pyroclastics or clays, or as a primary precipitate; authigenic in sandstones and siltstones.

Association: Zeolites, prehnite, calcite, quartz, glauconite.


Name: From the Greek for weak, alluding to the weak electrostatic charge developed when heated or rubbed.

Type Material: Natural History Museum, Paris, France, 13.77, H4154.


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