Gmelinite-Na

Na₄(Si₈Al₄)O₂₄-11H₂O

Crystal Data: Hexagonal. Point Group: 6/m 2/m 2/m. As euhedral crystals, pyramidal, tabular, or rhombohedral, striated || (001) or less commonly, || (001), to 4 cm. Rarely in radiating aggregates or granular. Twinning: Penetration twins on {1001}, common.


Optical Properties: Transparent to translucent, opaque. Color: Colorless, white, reddish white, salmon-red, yellowish, greenish white; colorless in thin section. Luster: Vitreous. Optical Class: Uniaxial (-) or (+); may be anomalously biaxial. ω = 1.476-1.494 ε = 1.474-1.480

Cell Data: Space Group: P6₁/mmc. a = 13.75-13.80 c = 9.97-10.08 Z = 4

X-ray Powder Pattern: Montecchio Maggiore, Italy. 4.106 (100), 11.908 (63), 2.978 (55), 2.690 (44), 3.227 (41), 7.68 (29), 5.026 (28)

Chemistry:

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>50.00</td>
<td>46.57</td>
<td>Na₂O</td>
<td>7.20</td>
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<tr>
<td>Al₂O₃</td>
<td>19.17</td>
<td>21.12</td>
<td>K₂O</td>
<td>0.10</td>
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<tr>
<td>CaO</td>
<td>2.95</td>
<td>7.04</td>
<td>H₂O</td>
<td>20.00</td>
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<tr>
<td>SrO</td>
<td>0.58</td>
<td>0.25</td>
<td>Total</td>
<td>100.00</td>
</tr>
</tbody>
</table>

(1) Montecchio Maggiore, Italy; by electron microprobe, corresponds to (Na₂,32Ca₀,53Sr₀,06K₀,02)Si₇,84Al₂,28O₂₄·11H₂O. (2) South quarry, White Head, Co. Antrim, Ireland; by electron microprobe, corresponds to (Na₁,42Ca₁,28Sr₀,06K₀,02)Si₇,84O₂₄·11H₂O.

Mineral Group: Zeolite group.

Occurrence: Formed from sodium-rich fluids, in basalts and related igneous rocks, also pegmatites.

Association: Zeolites, calcite, aragonite, quartz.


Name: For Christian Gottlob Gmelin (1792-1860), mineralogist and chemist of Tübingen, Germany. The suffix indicates the dominance of Na as the extra-framework cation.