Sanidine

(K, Na)(Al, Si)₄O₈

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Crystal Data: Monoclinic. Point Group: 2/m. Crystals commonly tabular on {010}, with a square cross section, to 50 cm. Acicular in spherulites. Twinning: Carlsbad twins are common, Baveno and Manebach twins rarer.

Physical Properties: Cleavage: Perfect on {001}, distinct on {010}; parting on {100}. Fracture: Conchoidal to uneven. Tenacity: Brittle. Hardness = 6 D(meas.) = 2.56–2.62 D(calc.) = 2.56

Optical Properties: Transparent. Color: Colorless to white; colorless in thin section. Streak: White. Luster: Vitreous, pearly on cleavage. Optical Class: Biaxial (+). Orientation: Y = b; Z = c ~ ±20° (low); Z = b; Y = c ~ ±21° (high). Dispersion: r ≪ v or r > v, weak. α = 1.518–1.524 β = 1.522–1.529 γ = 1.522–1.530 2V(meas.) = 18°–42° (low); 15°–63° (high)

Cell Data: Space Group: C2/m (high). a = 8.603(2) b = 13.036(4) c = 7.174(2) β = 116.03(2)° Z = 4

X-ray Powder Pattern: Locality unknown.

3.326 (100), 3.284 (60), 3.788 (57), 4.235 (53), 3.225 (52), 2.584 (35), 3.458 (31)

Chemistry:

<table>
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<tr>
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<th>(2)</th>
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<th>(2)</th>
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<tbody>
<tr>
<td>SiO₂</td>
<td>64.79</td>
<td>67.27</td>
<td>Na₂O</td>
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<tr>
<td>Al₂O₃</td>
<td>18.50</td>
<td>18.35</td>
<td>K₂O</td>
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<tr>
<td>FeO + Fe₂O₃</td>
<td>0.92</td>
<td>H₂O⁺</td>
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<tr>
<td>CaO</td>
<td>0.15</td>
<td>H₂O⁻</td>
<td>0.08</td>
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</tbody>
</table>

Total 100.08 100.35

(1) Buck claims, Bernic Lake, Canada; by electron microprobe, average of analyses on six crystals; corresponds to K₀.90Al₁.₀₁Si₀.₀₉O₈ (2) Mitchell Mesa rhyolite, Texas, USA; corresponds to (Na₀.₇₈K₀.₂₂)(Al₀.₀₇Fe₀.₃₃)O₈

Polymorphism & Series: High sanidine forms a series with high albite.

Mineral Group: Feldspar (alkali) group; (Al, Si) completely disordered.

Occurrence: Most common in felsic volcanic and hypabyssal rocks as rhyolites, phonolites, trachytes; as spherulites in volcanic glass. Also from ultrapotassic mafic, high-temperature contact metamorphic (sanidinite facies), and hydrothermally altered rocks. From eclogite nodules in kimberlite.


Distribution: Not uncommon, but rare in crystals of any size. In Germany, from Drachenfels, Siebengebirge, Rhine; and at Hohenfels, Mendig, Mayen, and elsewhere around the Laacher See, Eifel district. In France, at Mt. Dore, Auvergne, and Puy Gros du Laney, Puy-de-Dôme. From Vesuvius and Monte Somma, Campania, and Monte Cimine, Lazio, Italy. At Daichi, Wakayama Prefecture, Japan. From Kanchin-do, Meisem-gun, northeast Korea. In the USA, at Tooele, Utah; Cottonwood Canyon, Peloncillo Mountains, Cochise Co., Arizona; as large crystals in Rabb Canyon and near the crest of the Black Range, Grant Co., New Mexico. From Bernic Lake, Manitoba, and Mont Saint-Hilaire, Quebec, Canada. In the Sierra de San Francisco, Durango, Mexico.

Name: From the Greek for tablet or board, in allusion to the mineral’s common habit.


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