Oligoclase \( \text{Na}_{0.9-0.7}\text{Ca}_{0.1-0.3}\text{Al}_{1.1-1.3}\text{Si}_{2.9-2.7}\text{O}_8 \)

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Crystal Data: Triclinic. Point Group: \( \text{T} \). Crystals uncommon, flattened and tabular along [010], to 6 cm; more commonly cleavable to compact, massive. Twinning: Typically twinned according to the Albite, Carlsbad, and Pericline laws.

Physical Properties: Cleavage: Perfect on \{001\}, less perfect on \{010\}, imperfect on \{110\}, \( (001) \wedge (010) \sim 94^\circ \). Fracture: Conchoidal to uneven. Tenacity: Brittle. Hardness = 6–6.5

D(meas.) = 2.63–2.66 D(calc.) = 2.624–2.652

Optical Properties: Transparent to translucent. Color: White, may be tinted gray, green, red; colorless in thin section; may be opalescent or iridescent. Streak: White. Luster: Vitreous to pearly.

Optical Class: Biaxial (+) or (−). Dispersion: \( r > v \), weak, \( \alpha = 1.533–1.545 \) \( \beta = 1.537–1.548 \) \( \gamma = 1.542–1.552 \) 2V(meas.) = 84° to −87° to 90° (low); −52° to −73° (high).

Cell Data: Space Group: \( \text{C}1 \) (low). \( a = 8.152 \) \( b = 12.821 \) \( c = 7.139 \) \( \alpha = 93.99^\circ \) \( \beta = 116.46^\circ \) \( \gamma = 88.58^\circ \) \( Z = 4 \), or Space Group: \( \text{C}1 \) (high). \( a = 8.163 \) \( b = 12.875 \) \( c = 7.167 \) \( \alpha = 93.99^\circ \) \( \beta = 116.46^\circ \) \( \gamma = 88.58^\circ \) \( Z = 4 \)

X-ray Powder Pattern: Petrick quarry, Llano Co., Texas, USA (low). 3.18 (100), 4.03 (80), 3.76 (70), 2.93 (70), 6.38 (60), 3.69 (60)

X-ray Powder Pattern: Synthetic \( \text{Na}_{0.7}\text{Ca}_{0.3}\text{Al}_{1.8}\text{Si}_{2.7}\text{O}_8 \).

3.20 (100), 4.02 (80), 3.74 (80), 3.17 (80), 4.69 (60), 5.36 (70), 3.36 (60)

Chemistry:

<table>
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<th>( \text{SiO}_2 )</th>
<th>( \text{Al}_2\text{O}_3 )</th>
<th>( \text{CaO} )</th>
<th>( \text{Na}_2\text{O} )</th>
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<th>H_2O</th>
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(1) Monteagle, Ontario, Canada. (2) \( \text{Na}_{0.9}\text{Ca}_{0.1}\text{Al}_{1.9}\text{Si}_{2.9}\text{O}_8 \). (3) \( \text{Na}_{0.7}\text{Ca}_{0.3}\text{Al}_{1.3}\text{Si}_{2.7}\text{O}_8 \).

Polymorphism & Series: Low- and high-temperature structural modifications are recognized.

Mineral Group: Feldspar group, plagioclase series.

Occurrence: Common in granite, syenite, nepheline syenite, and their pegmatites; in diorite, rhyolite, andesite. In serpentinite and gneiss; in amphibolite facies metamorphic rocks; as clastic grains in sedimentary rocks.

Association: Quartz, orthoclase, sanidine, tourmaline, corundum.


Name: From the Greek for little and fracture, for cleavages believed inferior to albite.


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