

**Albite****Na<sub>1.0-0.9</sub>Ca<sub>0.0-0.1</sub>Al<sub>1.0-1.1</sub>Si<sub>3.0-2.9</sub>O<sub>8</sub>**

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**Crystal Data:** Triclinic. *Point Group:*  $\bar{1}$ . Crystals commonly tabular || {010}, may be curved, to 3 cm; divergent aggregates, granular, cleavable massive. *Twinning:* Common around [010] or  $\perp$  {010}, giving polysynthetic striae on {001} or {010}; many other laws, contact, simple and multiple.

**Physical Properties:** *Cleavage:* Perfect on {001}, very good on {010}, imperfect on {110}. *Fracture:* Uneven to conchoidal. *Tenacity:* Brittle. Hardness = 6–6.5 D(meas.) = 2.60–2.65 D(calc.) = 2.609–2.621

**Optical Properties:** Transparent to translucent. *Color:* White to gray, bluish, greenish, reddish; may be chatoyant. *Streak:* White. *Luster:* Vitreous, typically pearly on cleavages. *Optical Class:* Biaxial (+) (low); (–) (high). *Dispersion:*  $r < v$ , weak (low).  $\alpha = 1.526$ – $1.530$   $\beta = 1.531$ – $1.533$   $\gamma = 1.534$ – $1.541$   $2V(\text{meas.}) = 85^\circ$ – $90^\circ$  (low);  $52^\circ$ – $54^\circ$  (high).

**Cell Data:** *Space Group:*  $C\bar{1}$  (low).  $a = 8.137(1)$   $b = 12.785(1)$   $c = 7.1583(4)$   $\alpha = 94.26(1)^\circ$   $\beta = 116.60(1)^\circ$   $\gamma = 87.71(1)^\circ$   $Z = 4$ , or *Space Group:*  $C\bar{1}$  (high).  $a = 8.149$   $b = 12.880$   $c = 7.106$   $\alpha = 93.37^\circ$   $\beta = 116.30^\circ$   $\gamma = 90.28^\circ$   $Z = 4$

**X-ray Powder Pattern:** Amelia, Virginia, USA (low). 3.196 (100), 3.780 (25), 6.39 (20), 3.684 (20), 4.030 (16), 3.663 (16), 2.933 (16)

Chemistry:	(1)	(2)	(3)
SiO <sub>2</sub>	68.71	68.74	66.04
Al <sub>2</sub> O <sub>3</sub>	19.63	19.44	21.26
CaO	0.22		2.13
Na <sub>2</sub> O	11.72	11.82	10.57
K <sub>2</sub> O	0.03		
Total	100.31	100.00	100.00

(1) Alp Rischuna, Switzerland. (2) NaAlSi<sub>3</sub>O<sub>8</sub>. (3) Na<sub>0.90</sub>Ca<sub>0.10</sub>Al<sub>1.10</sub>Si<sub>2.90</sub>O<sub>8</sub>.

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

**Mineral Group:** Feldspar group, plagioclase series.

**Occurrence:** A major constituent of granites and granite pegmatites, alkalic diorites, basalts, and in hydrothermal and alpine veins. A product of potassium metasomatism and in low-temperature and low-pressure metamorphic facies and in some schists. Detrital and authigenic in sedimentary rocks.

**Association:** Quartz, orthoclase, muscovite, biotite, “hornblende.”

**Distribution:** Widespread; a few localities for good crystals are: in Switzerland, from St. Gotthard, Ticino and Tavetsch, Graubünden. From Roc Tourné, near Modane, Savoie, France. On Mt. Greiner, Zillertal, Tirol, Austria. At Baveno, Piedmont, and in the Pfitschtal, Trentino-Alto Adige, Italy. From Mursinka, Ural Mountains, and Miass, Ilmen Mountains, Southern Ural Mountains, Russia. In the USA, at Haddam and Middletown, Middlesex Co., Connecticut; Amelia, Amelia Co., Virginia; from Diana, Lewis Co., and Dekalb, Macomb, and Pierrepont, St. Lawrence Co., New York. On Prince of Wales Island, Alaska; in the Pala and Mesa Grande districts, San Diego Co., California. At Bathurst, and Wicklow Township, Hastings Co., Ontario, Canada. From Virgem da Lapa and Morro Velho, Minas Gerais, Brazil.

**Name:** From the Latin, *albus*, for *white*, its characteristic color.

**References:** (1) Dana, E.S. (1892) Dana’s system of mineralogy, (6th edition), 325–333. (2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 94–165. (3) Phillips, W.R. and D.T. Griffen (1981) Optical mineralogy, 352–360. (4) Armbruster, T., H.B. Bürgi, M. Kunz, E. Gnos, S. Brönnimann, and C. Lienert (1990) Variation of displacement parameters in structure refinements of low albite. *Amer. Mineral.*, 75, 135–140.

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