

**Crystal Data:** Tetragonal, pseudocubic. *Point Group:* 4/*m*. Commonly euhedral, pseudocubic crystals, showing {112}, with {100}, {110} may be present, to 9 cm, typically showing fine twin striae. As disseminated grains; rarely granular, massive. *Twinning:* Common and repeated on {110}, {101}, and other orientations, from two complex displacive phase transformations during cooling.

**Physical Properties:** *Cleavage:* Very poor on {110}. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 5.5–6 D(meas.) = 2.45–2.50 D(calc.) = [2.46]

**Optical Properties:** Transparent to translucent. *Color:* White, gray; colorless in thin section. *Luster:* Vitreous. *Optical Class:* Uniaxial (+); may be anomalously biaxial. *Dispersion:* Moderate.  $\omega = 1.508$   $\epsilon = 1.509$  2*V*(meas.) = Very small.

**Cell Data:** *Space Group:* I<sub>4</sub>/a.  $a = 13.055\text{--}13.057$   $c = 13.749\text{--}13.753$   $Z = 16$

**X-ray Powder Pattern:** Villa Senni, Italy. (ICDD 15-47). 3.266 (100), 3.438 (85), 5.39 (80), 2.918 (70), 2.842 (70), 2.366 (65), 2.808 (55)

Chemistry:	(1)	(2)	(3)
SiO <sub>2</sub>	54.60	54.0	55.06
TiO <sub>2</sub>	0.03	0.13	
Al <sub>2</sub> O <sub>3</sub>	21.97	22.3	23.36
Fe <sub>2</sub> O <sub>3</sub>	0.89		
FeO	0.14	0.63	
MgO		0.08	
CaO	0.10	0.09	
BaO		0.00	
Na <sub>2</sub> O	0.23	0.42	
K <sub>2</sub> O	21.45	21.6	21.58
Total	99.41	99.25	100.00

(1) Villa Senni, Italy. (2) Central Sierra Nevada, California, USA; by electron microprobe, average of nine analyses. (3) KAlSi<sub>2</sub>O<sub>6</sub>.

**Occurrence:** With potassium-rich mafic and ultramafic lavas and hypabyssal rocks, and may almost entirely compose them.

**Association:** Potassic feldspar, nepheline, analcime, natrolite, kalsilite.

**Distribution:** From numerous localities worldwide, typically in good crystals. Especially from Italy, as at Vesuvius, Monte Somma, and Roccamonfina, Campania; at Villa Senni, Frascati, and Ariccia, Lazio; and on Vulcano, Lipari Islands. Around the Laacher See, Eifel district, Germany. In the USA, from the Leucite Hills, Sweetwater Co., Wyoming; the Bear Paw Mountains, Hill Co., Montana; and at Magnet Cove, Hot Spring Co., Arkansas. In the West Kimberley district, Western Australia. In Tanzania, on Kilimanjaro. In Uganda, found around Ruwenzori and Kariya. From Mt. Nyiragongo, Kivu Province, Congo (Zaire).

**Name:** From the Greek *leucos* for *white*, in allusion to its color.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 342–343. (2) Deer, W.A., R.A. Howie, and J. Zussman (1963) Rock-forming minerals, v. 4, framework silicates, 276–288. (3) Mazzi, F., E. Galli, and G. Gottardi (1976) The crystal structure of tetragonal leucite. *Amer. Mineral.*, 61, 108–115. (4) Van Kooten, G.K. (1980) Mineralogy, petrology, and geochemistry of an ultrapotassic basaltic suite, Central Sierra Nevada, California, U.S.A. *J. Petrol.*, 21, 651–684. (5) Palmer, D.C., A. Putnis, and E.K.H. Salje (1988) Twinning in tetragonal leucite. *Phys. Chem. Minerals*, 16, 298–303.

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