

**Crystal Data:** Monoclinic. *Point Group:* 2/*m*. Crystals rare, prismatic with {110}, {111}, and {100} as dominant forms, showing cleavage faces to 1 cm. Commonly massive, or fibrous, granular, compact. *Twinning:* Single and lamellar twinning on {100} and {001}.

**Physical Properties:** *Cleavage:* Good on {110}, (110) ∧ (1 $\bar{1}$ 0) ~87°. *Fracture:* Splintery. *Tenacity:* Very tough when massive. Hardness = 6–7 D(meas.) = 3.24–3.43 D(calc.) = 3.330

**Optical Properties:** Translucent. *Color:* Apple-green, emerald-green, bluish green, leek-green, greenish white, white, may show green spots, rarely blue or violet; colorless in thin section. *Streak:* White. *Luster:* Subvitreous, pearly on cleavages.

*Optical Class:* Biaxial (+). *Orientation:* Y = b; Z ∧ c = 32°–55°. *Dispersion:* r > v, moderate to strong. α = 1.640–1.681 β = 1.645–1.684 γ = 1.652–1.692 2V(meas.) = 60°–96°

**Cell Data:** *Space Group:* C2/c. a = 9.418 b = 8.562 c = 5.219 β = 107.58° Z = 4

**X-ray Powder Pattern:** Clear Creek, California, USA.

2.831 (100), 2.922 (75), 4.29 (45), 3.10 (30), 2.069 (30), 2.417 (25), 2.490 (20)

| Chemistry:                     | (1)   | (2)   | (1)                           | (2)   |
|--------------------------------|-------|-------|-------------------------------|-------|
| SiO <sub>2</sub>               | 59.06 | 61.66 | MgO                           | 0.17  |
| TiO <sub>2</sub>               | 0.08  | 0.05  | CaO                           | 0.35  |
| Al <sub>2</sub> O <sub>3</sub> | 24.62 | 21.81 | Na <sub>2</sub> O             | 14.95 |
| Fe <sub>2</sub> O <sub>3</sub> | 0.41  | 0.32  | K <sub>2</sub> O              | 0.01  |
| FeO                            | 0.18  | 0.24  | H <sub>2</sub> O <sup>+</sup> | 0.07  |
| MnO                            | 0.03  | 0.05  | H <sub>2</sub> O <sup>-</sup> | 0.03  |
|                                |       |       | Total                         | 99.96 |
|                                |       |       |                               | 99.87 |

(1) New Idria district, California, USA; corresponds to (Na<sub>0.98</sub>Ca<sub>0.01</sub>)<sub>Σ=0.99</sub>(Al<sub>0.98</sub>Fe<sub>0.01</sub><sup>3+</sup>Mg<sub>0.01</sub>)<sub>Σ=1.00</sub>Si<sub>2.00</sub>O<sub>6</sub>. (2) Cloverdale, California, USA; corresponds to (Na<sub>0.80</sub>Ca<sub>0.05</sub>K<sub>0.02</sub>)<sub>Σ=0.87</sub>(Al<sub>0.87</sub>Mg<sub>0.05</sub>Fe<sub>0.01</sub><sup>3+</sup>Fe<sub>0.01</sub><sup>2+</sup>)<sub>Σ=0.94</sub>Si<sub>2.08</sub>O<sub>6</sub>.

**Mineral Group:** Pyroxene group.

**Occurrence:** In high-pressure metamorphic rocks of the glaucophane facies; a component of eclogite.

**Association:** Albite, quartz, muscovite, omphacite, glaucophane, calcite, aragonite, analcime, zeolites.

**Distribution:** In small amounts at many places; the origin of many specimens is obscure. Some well-known localities are: around Tawmaw, Myitkyina-Mogaung district, Kachin State, northern Myanmar (Burma). In the Ohmi area, along the Hashidate and Kotake Rivers, Niigata Prefecture, and at Shibukawa, Gumma Prefecture, Japan. Around Lake Baikal, Siberia, Russia. In the USA, in California, as crystals in boulders along the Russian River, about 3.5 km north of the Sonoma-Mendocino Co. line, near Cloverdale; at Clear Creek, near New Idria, San Benito Co.; and at several places in Mendocino Co. At Manzanal, in the Motagua Valley, near the Sierra de las Minas, Guatemala.

**Name:** From *jade*, a material commonly containing jadeite, in turn from the Spanish *Piedra de yjada*, or *colic stone*, for its supposedly curative powers for nephritic colic.

**References:** (1) Dana, E.S. (1892) Dana's system of mineralogy, (6th edition), 369–371. (2) Deer, W.A., R.A. Howie, and J. Zussman (1978) Rock-forming minerals, (2nd edition), v. 2A, single-chain silicates, 461–481. (3) Wolfe, C.W. (1955) Crystallography of jadeite crystals from near Cloverdale, California. *Amer. Mineral.*, 40, 248–260. (4) Prewitt, C.T. and C.W. Burnham (1966) The crystal structure of jadeite, NaAlSi<sub>2</sub>O<sub>6</sub>. *Amer. Mineral.*, 51, 956–975. (5) Coleman, R.G. and J.R. Clark (1968) Pyroxenes in the blueschist facies of California. *Amer. J. Sci.*, 266, 43–59.

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