

**Crystal Data:** Hexagonal. *Point Group:* 6/*m*. As prisms, to 5 mm, and as hexagonal-shaped basal sections.

**Physical Properties:** *Cleavage:* Pyramidal, poor, intersecting at 80°–90°. *Fracture:* Conchoidal. *Hardness* = 6–6.5 *D*(meas.) = 3.10–3.13 *D*(calc.) = 3.16 Cathodoluminescent.

**Optical Properties:** Transparent. *Color:* Colorless, rarely light pink or lilac. *Luster:* Adamantine.

*Optical Class:* Uniaxial (+).  $\omega = 1.624\text{--}1.627$   $\epsilon = 1.655\text{--}1.673$

**Cell Data:** *Space Group:* P6<sub>3</sub>/*m*. *a* = 6.893(4) *c* = 10.172(2) *Z* = 2

**X-ray Powder Pattern:** Wolgidee Hills, Western Australia. (ICDD 10-461). 2.85 (100), 3.85 (80), 5.97 (60), 1.85 (60), 1.69 (60), 1.63 (40), 5.11 (30)

**Chemistry:**

	(1)	(2)
SiO <sub>2</sub>	45.12	42.80
TiO <sub>2</sub>	1.58	0.24
ZrO <sub>2</sub>	28.83	26.66
Al <sub>2</sub> O <sub>3</sub>	0.03	1.92
Fe <sub>2</sub> O <sub>3</sub>	0.04	0.25
MgO	0.02	
CaO		3.10
SrO	0.03	
Na <sub>2</sub> O		1.50
K <sub>2</sub> O	24.21	20.12
H <sub>2</sub> O <sup>+</sup>		0.93
P <sub>2</sub> O <sub>5</sub>		2.45
Total	99.86	99.97

(1) Wolgidee Hills, Western Australia; by electron microprobe, corresponding to K<sub>2.04</sub>(Zr<sub>0.93</sub>Ti<sub>0.08</sub>)<sub>Σ=1.01</sub>Si<sub>2.98</sub>O<sub>9</sub>. (2) Khibiny massif, Russia.

**Occurrence:** In veins in leucite lamproites (Wolgidee Hills, Western Australia); in nepheline-feldspathoid and natrolite veins in a differentiated alkalic massif (Khibiny massif, Russia).

**Association:** Leucite, phlogopite, olivine, titanian potassian fluor-richterite, perovskite, apatite, calcite, barite, “chalcedony,” zeolites (West Kimberley area, Western Australia); astrophyllite, biotite, aegirine, titanite, sodalite, barite, apatite, fluorite, zeolites (Khibiny massif, Russia).

**Distribution:** From the Wolgidee Hills and in the Argyle diamond mine, West Kimberley area, Western Australia. In the Khibiny and Kovdor massifs, Kola Peninsula, and the Murun massif, southwest of Olekminsk, Yakutia, Russia.

**Name:** For Dr. Arthur Wade, Australian geologist who first collected the mineral.

**Type Material:** University of Western Australia, Perth, Australia, 18760.

**References:** (1) Prider, R.T. (1939) Some minerals from the leucite-rich rocks of the West Kimberley, Western Australia. *Mineral. Mag.*, 25, 374–387. (2) (1940) *Amer. Mineral.*, 25, 254 (abs. ref. 1). (3) Henshaw, D.E. (1955) The structure of wadeite. *Mineral. Mag.*, 30, 585–595. (4) Kapustin, Y.L. (1963) Discovery of wadeite in the USSR. *Doklady Acad. Nauk SSSR*, 151, 1410–1412 (in Russian). (5) (1963) *Chem. Abs.*, 59, 15038 (abs. ref. 4). (6) Blinov, V.A., N.G. Shumyatskaya, A.A. Voronkov, V.V. Ilyukhin, and N.V. Belov (1977) Refinement of the crystal structure of wadeite K<sub>2</sub>Zr[Si<sub>3</sub>O<sub>9</sub>] and its relationship to kindred structural types. *Kristallografiya* (Sov. Phys. Crystal.), 22, 59–65 (in Russian). (7) Birch, W.D. (1985) A note on large crystals of priderite, jeppeite, wadeite and other minerals from Wolgidee [Wolgidee] Hills, Western Australia. *Australian Mineral.*, 50, 298–302.

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