

MinIdent-Win - jadeite

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Formula: Na(Al,Fe³⁺)Si₂O₆

Status: Mineral name is IMA approved or traditional

Level: Species

Parents: Na-pyroxenes

Symmetry: Monoclinic

Mean Atomic Number: 10.9

Diffraction Values: 2.830, 2.924, 4.293, 3.102, 2.070

Kretz abbreviation: Jd

First Described in 1863

Space Group: C2/c

Z number: 4

ICDD (TM) Number: 22-1338

	Minimum	Maximum	Average	Std. Dev.
a (A)	9.418	9.500	9.487	
b (A)	8.562	8.630	8.627	
c (A)	5.219	5.240	5.231	
Alpha	90.000	90.000	90.000	
Beta	107.433	107.580	107.433	
Gamma	90.000	90.000	90.000	
Volume	401.514	409.537	408.478	

	Minimum	Maximum	Average	Std. Dev.
n(Alpha)	1.407	1.681	1.637	0.074
n(Beta)	1.413	1.684	1.644	0.071
n(Gamma)	1.415	1.692	1.649	0.075
Max. birefringence	0.011	0.015	0.012	
2V Gamma	60	95	72	

Optical Sign: +ve or -ve **OAP Orientation:** Parallel (010)

C(Alpha)	<input type="text"/>	Colourless
C(Beta)	<input type="text"/>	Colourless
C(Gamma)	<input type="text"/>	Colourless
Dispersion	Both	

	Minimum	Maximum	Average	Std. Dev.
Mohs	6.0	7.0	6.5	
Vickers	771	1133	943	
Density	3.24	3.43	3.31	

	Total Min Wt (%)	Anal. Min Wt (%)	Average Wt (%)	Anal. Max Wt (%)	Total Max Wt (%)	Average Atomic	Coordination
H	0.0000	0.0000	0.0353	0.1656	0.1656	0.0713	
Li	0.0000	0.0000	0.0023	0.0046	0.0046	0.0007	
O	44.3244	45.7780	47.0292	47.8172	47.8172	6.0000	
Na	8.9839	8.9839	10.0197	11.0908	11.3727	0.8897	8
Mg	0.0000	0.0724	0.6637	1.7068	1.7068	0.0557	6
Al	6.2285	9.6059	11.9885	13.6652	13.6652	0.9070	6
Si	25.9390	26.3402	27.4307	28.8223	28.8223	1.9934	4
K	0.0000	0.0000	0.1130	0.5894	0.5894	0.0059	
Ca	0.0000	0.0071	1.1097	3.0232	3.0232	0.0565	8
Ti	0.0000	0.0000	0.0914	0.3657	0.3657	0.0039	6
Cr	0.0000	0.0000	0.0019	0.0068	0.0068	0.0001	
Mn	0.0000	0.0000	0.0297	0.1239	0.1239	0.0011	6
Fe	0.0000	0.0311	1.2565	4.7820	12.8933	0.0459	6
Total			99.7716			10.0312	

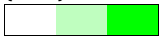


Atomic proportions calculated for O = 6.0

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Compilation based on 2 general and 19 sample records

Values in italics are calculated from the minimum and maximum values. Other data are from the sample and general records.

Lustre	Pearly, Vitreous
Aggregation	Granular, Massive, Felted, Foliateous
Habit	Anhedral, Massive
Tenacity	Brittle, Tough
Fracture	Uneven
Cleavage	{110} Good
Surface Colour	 White, Pale Green, Green
Streak	 Colourless, White
Other lumin.	 Cathodoluminescent: Dark Red

Comp. Plan.	Comp. Surf.	Twin Plane	Twin Axis	Notes
		{100}		Simple, Lamellar
		{001}		Simple, Lamellar

Remarks: Colourless, white or shades of green; occasionally grey, blue or mauve; rarely black. The streak is white and the lustre is vitreous to greasy. The very rare, well-formed crystals have the typical {110} prismatic pyroxene cleavages at 93°/87°. Much more commonly, however, the mineral occurs as disseminated grains or forms felted, fibrous masses. Massive material is very tough and has a splintery fracture.

Occurrences: A comparatively uncommon pyroxene that is always associated with albite in glaucophane schist or other relatively high pressure/low temperature regional metamorphic rocks. Other commonly associated minerals, apart from glaucophane, are lawsonite, white mica and chlorite.

Localities of samples used in compilation: Burma. Koesek River, Celebes. Sorkhan, Iran. Clear Creek, San Benito County; Cloverdale; Clear Creek, New Idria district; Kanto Mountains, Valley Ford; California, U.S.A. Kotaki, Sizuoka Prefecture, Japan. Mexico. Manganal, Guatemala. Guajira Peninsula, Columbia.

References: Can. Min. v.45, p.1501-1509. Deer et al. (1963) v.2, p.99-108; (1978) v.2A, p.461-481. Roberts et al. (1974) Encycl. Mins. Phillips & Griffen (1981) Opt. Min.

MinIdent-Win

Jadeite



Dorian G.W. Smith

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Caption: The image shows a sawn slab and an un-cut piece of precious jade - the mineral jadeite. Compare the appearance of this mineral with nephrite jade which can be seen amongst the images of actinolite.

Locality: Goshen, California, U.S.A.

Keywords: jadeite; clinopyroxenes; diopside-jadeite-series; pyroxenes; inosilicates; chain silicates; precious jade; carving stone; semi-precious stone

Acknowledgements: From specimen no. G70.1.4635, kindly made available by the Provincial Museum of Alberta, Courtesy Ron Mussieux, Curator. Photography by Frank Dimitrov and Dorian Smith.