

# MinIdent-Win - olivine-series

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**Formula:** (Mg,Fe)<sub>2</sub>SiO<sub>4</sub>

**Status:** Mineral name is IMA approved or traditional

**Kretz abbreviation:** Ol

**Level:** Series

**Parents:** olivine-group

**Symmetry:** Orthorhombic

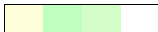
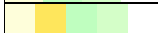
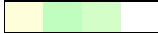
**Space Group:** Pnma

**Mean Atomic Number:** 14.6

**Z number:** 4

	Minimum	Maximum	Average	Std. Dev.
a (A)	4.720	4.821	4.788	
b (A)	10.194	10.500	10.347	
c (A)	5.980	6.105	6.040	
Alpha	90.000	90.000	90.000	
Beta	90.000	90.000	90.000	
Gamma	90.000	90.000	90.000	
Volume	287.73	309.04	299.23	

	Minimum	Maximum	Average	Std. Dev.
n(Alpha)	1.635	2.010	1.721	
n(Beta)	1.650	2.020	1.746	
n(Gamma)	1.669	2.030	1.763	
Max. birefrin	0.024	0.152	0.042	
2V Gamma	49	134	105	

C(Alpha)		Pale Yellow, Pale Green, Pale Yellowish Green, Colourless
C(Beta)		Pale Yellow, Orange Yellow, Pale Green, Pale Yellowish Green, Colourless
C(Gamma)		Pale Yellow, Pale Green, Pale Yellowish Green, Colourless
Dispersion	R>V	

	Minimum	Maximum	Average	Std. Dev.
Mohs	5.0	7.0	6.4	
Vickers	483	1133	905	
Density	3.15	4.40	3.75	

	Total Min Wt (%)	Anal. Min Wt (%)	Average Wt (%)	Anal. Max Wt (%)	Total Max Wt (%)	Average Atomic	Coordination
H	0.0000	0.0000	0.0124	0.1835	0.1835	0.0206	
Li	0.0000	0.0000	0.0000	0.0002	0.0002	0.0000	
B	0.0000	0.0000	0.0003	0.0093	0.0093	0.0000	
C	0.0000	0.0000	0.0025	0.0437	0.0437	0.0003	
O	30.8871	31.1546	38.1192	45.4180	46.6153	4.0000	
F	0.0000	0.0000	0.0100	0.0200	0.0200	0.0009	
Na	0.0000	0.0000	0.0530	2.2256	2.2256	0.0039	
Mg	0.0000	0.0000	16.0331	34.8775	34.8989	1.1073	6
Al	0.0000	0.0000	0.1771	1.5878	1.5878	0.0110	
Si	13.5566	13.6305	16.5806	20.0075	20.4597	0.9910	4
P	0.0000	0.0000	0.0052	0.3797	0.3797	0.0003	
K	0.0000	0.0000	0.0109	0.1245	0.1245	0.0005	
Ca	0.0000	0.0000	0.2263	1.5580	1.5580	0.0095	
Ti	0.0000	0.0000	0.0805	0.8993	0.8993	0.0028	
V	0.0000	0.0000	0.0003	0.0220	0.0220	0.0000	
Cr	0.0000	0.0000	0.0276	0.4789	0.4789	0.0009	6
Mn	0.0000	0.0000	0.6130	20.2056	27.0800	0.0187	6
Fe	0.0000	0.5363	28.2124	54.2485	55.3594	0.8481	6
Co	0.0000	0.0000	0.1455	0.2831	0.2831	0.0041	

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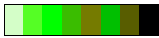



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Ni	0.0000	0.0000	0.0487	0.5265	0.5265	0.0014	6
Zn	0.0000	0.0000	0.3612	8.6690	8.6690	0.0093	6
Rb	0.0000	0.0007	0.0007	0.0007	0.0007	0.0000	
Sr	0.0000	0.0000	0.0023	0.0254	0.0254	0.0000	
Y	0.0000	0.0005	0.0005	0.0005	0.0005	0.0000	
Mo	0.0000	0.0000	0.0007	0.0226	0.0226	0.0000	
Ba	0.0000	0.0000	0.0061	0.0179	0.0179	0.0001	
<b>Total</b>			100.7301			7.0309	

Atomic proportions calculated for O = 4.0

Compilation based on 0 general and 0 sample records

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

<b>Lustre</b>	Vitreous
<b>Aggregation</b>	Granular, Massive
<b>Habit</b>	Granular
<b>Tenacity</b>	Brittle
<b>Fracture</b>	Conchoidal
<b>Cleavage</b>	None
<b>Surface Colour</b>	 Pale Yellowish Green, Yellowish Green, Green, Brownish Green, Greenish Brown, Dark Green, Dark Greenish Brown, Black
<b>Streak</b>	 White, Colourless, Yellow
<b>Fluor. Short</b>	 Blue
<b>Fluor. Long</b>	 Pale Orange

Comp. Plan.	Comp. Surf.	Twin Plane	Twin Axis	Notes
		{011}		
		{012}		
		{031}		

**Remarks:** The continuous solid solution series between the Mg end-member forsterite and the Fe end-member fayalite. Data for varieties such as the Mn-rich knebellite are included.

**Occurrences:** In a wide range of rocks, particularly igneous rocks from acid to ultrabasic. Also a major constituent of chondritic meteorites.

**References:**

