

MinIdent-Win - orthoclase

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Formula: KAlSi_3O_8

Status: Mineral name is IMA approved or traditional

Level: Species

Parents: alkali-feldspars and orthoclase-hyalophane-celsian-series

Symmetry: Monoclinic

Mean Atomic Number: 11.7

Diffraction Values: 3.310, 3.770, 4.220, 3.240, 3.290

Kretz abbreviation: Or

First Described in 1823

Space Group: C2/m

ICDD (TM) Number: 31-966

	Minimum	Maximum	Average	Std. Dev.
a (A)	8.200	8.600	8.400	
b (A)	12.800	13.000	12.900	
c (A)	7.100	7.200	7.150	
Alpha	90.000	90.000	90.000	
Beta	116.000	116.000	116.000	
Gamma	90.000	90.000	90.000	
Volume	669.796	723.493	696.365	

	Minimum	Maximum	Average	Std. Dev.
n(Alpha)	1.515	1.529	1.523	
n(Beta)	1.522	1.533	1.527	
n(Gamma)	1.522	1.539	1.529	
Max. birefringence	0.004	0.010	0.006	
2V Gamma	77	166	121	

Optical Sign: +ve or -ve **OAP Orientation:** Perp (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	6.5	6.0	
Vickers	714	850	782	
Density	2.55	2.63	2.58	0.01

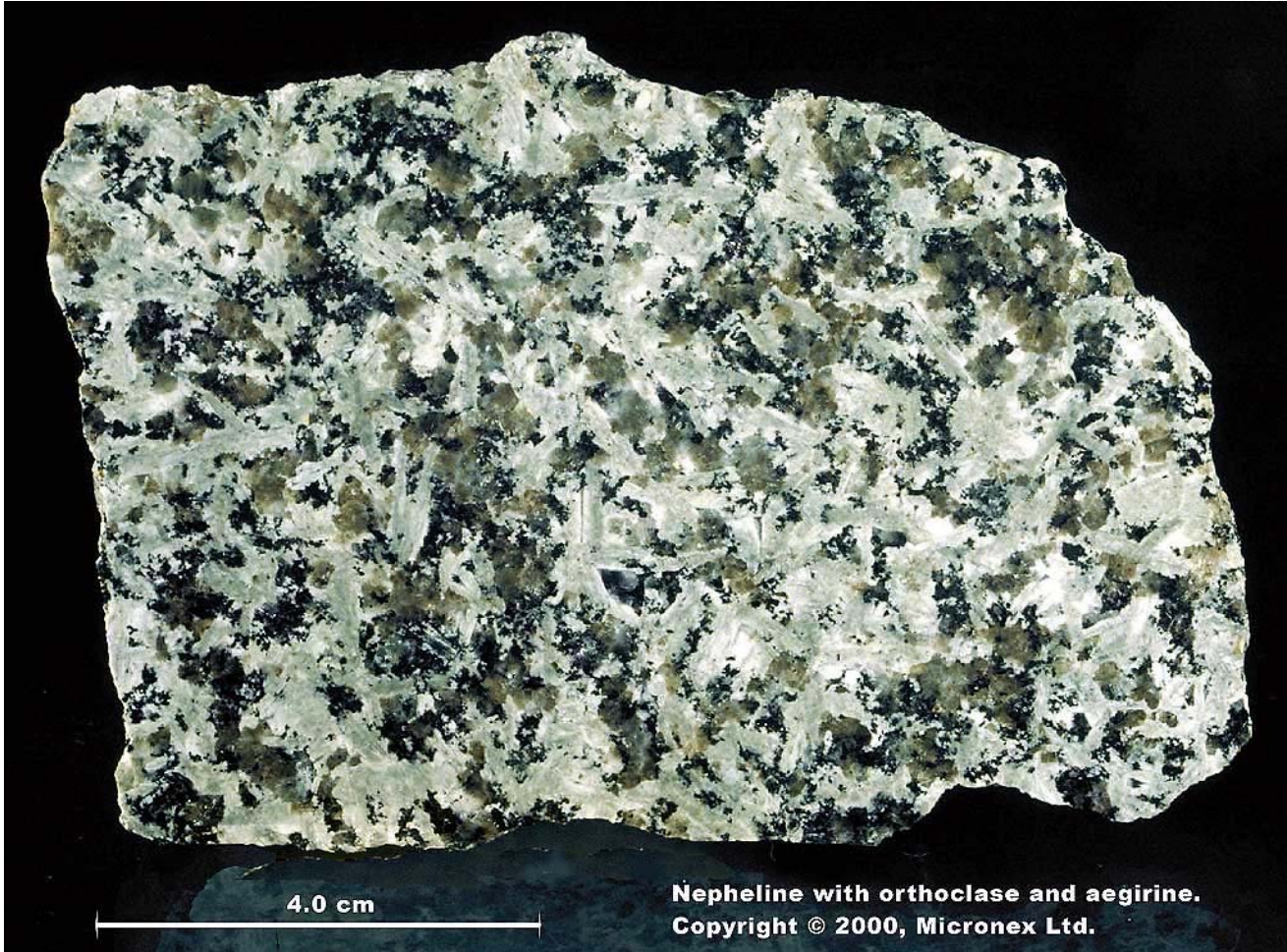
	Total Min Wt (%)	Anal. Min Wt (%)	Average Wt (%)	Anal. Max Wt (%)	Total Max Wt (%)	Average Atomic	Coordination
H	0.0000	0.0000	0.0995	1.7154	1.7154	0.2676	
O	44.3814	44.3814	47.1229	57.0074	57.0074	8.0000	
Na	0.0000	0.0000	2.1245	6.2613	6.2613	0.2510	10
Mg	0.0000	0.0000	0.0221	0.1146	0.1146	0.0025	
Al	8.8597	8.8597	10.0883	11.0296	11.0296	1.0157	4
Si	29.3054	29.3054	30.1724	30.7388	30.7388	2.9177	4
K	0.6558	0.6558	9.6907	14.2537	14.2537	0.6732	10
Ca	0.0000	0.0000	0.2281	0.8505	0.8505	0.0155	10
Ti	0.0000	0.0000	0.0039	0.0480	0.0480	0.0002	4
Mn	0.0000	0.0000	0.0000	0.0310	0.0310	0.0000	
Fe	0.0000	0.0000	0.2976	1.7905	1.7905	0.0145	4
Ba	0.0000	0.0000	0.2574	2.4451	2.4451	0.0051	10
Total			100.1074			13.1629	

Atomic proportions calculated for O = 8.0

Compilation based on 6 general and 24 sample records

MinIdent-Win

Nepheline, orthoclase and aegirine



Dorian G.W. Smith

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Caption: Pale greyish white orthoclase, greyish brown nepheline and black aegirine coexist in this famous nepheline syenite that was given the special varietal name "foyaite". Nepheline commonly takes on the pale brown colour that is seen here when it is somewhat altered. Locality: Foya Peak, Portugal.

Keywords: nepheline; orthoclase; aegirine; foyaite; syenite; disseminated; Foya Peak; Portugal; anhedral; tectosilicates; framework silicates; clinopyroxenes

Acknowledgements: From the personal collections of Dorian Smith. Photography by Frank Dimitrov and Dorian Smith.

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

Other lumin.  Cathodoluminescent: Blue, Pale Blue

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

Polymorphs: sanidine, adularia, microcline, kokchetavite

Synonyms: orthose

Remarks: Colourless, grey or shades of pink, brown or green. The streak is white and the lustre vitreous. Orthoclase is brittle with an uneven fracture, excellent {001} and very good {010} cleavages which are perpendicular to one another (from which feature orthoclase derives its name). Often massive or granular, but prismatic to tabular crystals are common in porphyritic rocks. Twinning is usual, particularly on the Carlsbad, Baveno and Manebach laws.

Occurrences: In rocks of alkalic and granitic composition, particularly those of hypabyssal origin where cooling has been relatively rapid. Thus orthoclase is found in feldspar porphyries and also in fine-scale, perthitic intergrowths with plagioclase in plutonic rocks that have cooled relatively rapidly. The mineral is found as a detrital component of sediments, particularly arkoses. In metasedimentary barite deposits (Spain).

Localities of samples used in compilation: Sinkwa, Mogok; Oksaung Daung, E.N.E. of Magok; Burma. Spalen, Nordmark, Oslo district; Fredriksværn; Norway. Ambalangoda, Sri Lanka. Fianarantsoa; Itrongay; Madagascar. Supsa River, west Georgia, Transcaucasia; Shap, Westmorland, Lovewell Mts., New Hampshire; Salem district Madras; U.S.A. Zamora, Spain.

References: Deer et al. (1963) v.4, p.36 et seq.; (1992) Intro. Rock-forming Mins. Roberts et al. (1990) Encycl. Mins. Rev. in Mineral. v.2. Can. Min. v.39, p.1039-1051.