

# MinIdent-Win - anhydrite

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**Formula:** CaSO<sub>4</sub>

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

**Level:** Species

**Parents:** sulphates

**Symmetry:** Orthorhombic

**Mean Atomic Number:** 13.4

**Diffraction Values:** 3.490, 2.849, 2.328, 2.210, 1.870

**Kretz abbreviation:** Anh

**First Described** in 1804

**Space Group:** Cmcm

**Z number:** 4

**ICDD (TM) Number:** 37-1496

	Minimum	Maximum	Average	Std. Dev.
a (A)	6.200	6.238	6.238	
b (A)	6.970	6.996	6.996	
c (A)	6.940	6.991	6.991	
Alpha	90.000	90.000	90.000	
Beta	90.000	90.000	90.000	
Gamma	90.000	90.000	90.000	
Volume	299.905	305.095	305.095	

	Minimum	Maximum	Average	Std. Dev.
n(Alpha)	1.569	1.574	1.569	
n(Beta)	1.574	1.579	1.577	
n(Gamma)	1.609	1.618	1.616	
Max. birefringence	0.040	0.044	0.044	
2V Gamma	44	44	44	

**Optical Sign:** +ve

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

	Minimum	Maximum	Average	Std. Dev.
Mohs	3.5	3.5	3.5	
Vickers	182	182	182	
Density	2.92	3.00	2.95	

	Total Min Wt (%)	Anal. Min Wt (%)	Average Wt (%)	Anal. Max Wt (%)	Total Max Wt (%)	Average Atomic	Coordination
H	0.0000	0.0000	0.0270	0.0873	0.0873	0.0364	
C	0.0000	0.0000	0.0300	0.1010	0.1010	0.0034	
O	46.5403	46.7233	47.0359	47.3513	47.4805	4.0000	
Mg	0.0000	0.0000	0.0603	0.3619	0.3619	0.0034	
Al	0.0000	0.0000	0.0033	0.0265	0.0265	0.0002	
Si	0.0000	0.0000	0.1893	1.2761	1.2761	0.0092	
S	22.6797	22.6797	23.2403	23.6088	23.7848	0.9863	4
Ca	27.9591	27.9591	29.2518	30.0818	30.0818	0.9931	8
Fe	0.0000	0.0000	0.0019	0.0155	0.0155	0.0000	
Sr	0.0000	0.0000	0.0824	0.6004	0.6004	0.0013	
Ba	0.0000	0.0000	0.0101	0.0448	0.0448	0.0001	
<b>Total</b>			99.9323			6.0333	

Atomic proportions calculated for O = 4.0



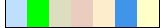
Compilation based on 2 general and 9 sample records

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

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*general records.*

<b>Lustre</b>	Vitreous, Pearly, Dull
<b>Aggregation</b>	Massive, Radiating, Plumose, Concretionary, Fibrous, Granular
<b>Habit</b>	Tabular, Prismatic
<b>Tenacity</b>	Brittle
<b>Fracture</b>	Splintery, Uneven
<b>Cleavage</b>	{010} Perfect, {100} Excellent, {001} Good
<b>Surface Colour</b>	 Colourless, White, Pale Blue, Blue, Pale Violet, Violet, Pale Pink, Pink, Pinkish White
<b>Streak</b>	 Colourless, White
<b>Fluor. Long</b>	 Red
<b>Other lumin.</b>	 Cathodoluminescent: Pale Blue, Green, Pale Greenish Brown, Pale Brown, Pale Orange, Greyish Blue, Cream

Comp. Plan.	Comp. Surf.	Twin Plane	Twin Axis	Notes
		{011}		Contact, Polysynthetic
		{120}		Contact

**Synonyms:** vulpinite

**Remarks:** Usually colourless or white but may be shades of brown, grey, pink, red, blue and violet. The lustre is vitreous, pearly or greasy. Three mutually perpendicular cleavages of perfect to good quality result in rectangular, brick-like fragments. Anhydrite sometimes forms thick tabular or prismatic crystals but is usually compact and massive or granular (saccharoidal). Sometimes anhydrite shows partial alteration to gypsum.

**Occurrences:** In evaporite deposits, salt domes and their metamorphic derivatives. The mineral may also occur as a hypogene gangue mineral in ore bodies.

**Localities of samples used in compilation:** Kalgoorlie, Western Australia. Strassfurt and Celle, W. Germany. Sangamon County, Ill., U.S.A. Yonaibata mine, Hukusima Prefecture, Japan. Chuvash Rep., Central U.S.S.R. Kano mine, Ugo, Japan. Stromboli, Italy.

**References:** Deer et al. (1962) v.5, p.219. Acta Cryst. v.31, p.2164. Dana (7th) v.2, 424-428.

# MinIdent-Win

## Anhydrite



Anhydrite. Copyright © 2000, Micronex Ltd.

3.0 cm

Dorian G.W. Smith

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**Caption:** Massive, pale brownish grey anhydrite shows the three mutually perpendicular cleavages and the vitreous lustre. It is associated here with a little chalcopyrite and bornite and here and there has altered along veins to the hydrated ca-sulphate mineral gypsum. The cleavage, hardness, absence of reaction to dilute HCl and the density are all useful in distinguishing it from orthorhombic carbonates or other common sulphates.

Locality: Ajo, Arizona, U.S.A.

**Keywords:** anhydrite; sulphates; chalcopyrite; sulphides; gypsum; Ajo; Arizona; U.S.A.; perfect cleavage; excellent cleavage; good cleavage; vitreous lustre

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