

# Antarcticite

# CaCl<sub>2</sub>•6H<sub>2</sub>O

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**Crystal Data:** Hexagonal. *Point Group:* 32. As aggregates of acicular crystals, to 15 cm, with generally poor terminations.

**Physical Properties:** *Cleavage:* {0001}, perfect; one prismatic, good to perfect. *Tenacity:* Brittle. *Hardness* = 2–3 *D(meas.)* = 1.715(10) *D(calc.)* = 1.700 Highly hygroscopic.

**Optical Properties:** Transparent. *Color:* Colorless. *Luster:* Vitreous. *Optical Class:* Uniaxial (-).  $\omega = 1.550$   $\epsilon = 1.490$ – $1.500$

**Cell Data:** *Space Group:* P321.  $a = 7.89$ – $7.907$   $c = 3.95$   $Z = 1$

**X-ray Powder Pattern:** Antarctica.  
3.44 (24), 2.80 (23), 2.16 (23), 2.60 (22), 3.98 (18), 2.28 (13), 6.92 (9)

Chemistry:	(1)	(2)	(3)
Na	0.34	0.30	
K	0.008		
Fe		0.003	
Mg	0.41	0.015	
Ca	17.5	17.25	18.29
Al		0.002	
Si		0.003	
Cl	32.7	33.14	32.37
H <sub>2</sub> O <sup>+</sup>	49.2	49.27	49.34
Total	100.1	99.98	100.00

(1) Don Juan Pond, Antarctica; corresponding to Ca<sub>1.00</sub>Mg<sub>0.04</sub>Na<sub>0.03</sub>Cl<sub>2.11</sub>•6.25H<sub>2</sub>O. (2) Bristol Dry Lake, California, USA. (3) CaCl<sub>2</sub>•6H<sub>2</sub>O.

**Occurrence:** A precipitate from highly saline brines under very arid conditions (Don Juan Pond, Antarctica; Bristol Dry Lake, California, USA); in stratified fresh to brackish to salt water columns in onshore “blue holes” (North Andros Island, Bahamas); an abundant component of inclusions in quartz in a zoned mafic pegmatoid (Bushveld complex, South Africa).

**Association:** Halite, gypsum, celestine (Bristol Dry Lake, California, USA).

**Distribution:** From Don Juan Pond, Wright Valley, and elsewhere around Mt. Erebus, Victoria Land, Antarctica. At Bristol Dry Lake, San Bernardino Co., California, USA. On North Andros Island, Bahamas. From the Bushveld complex, on Driekop Farm, Transvaal, South Africa.

**Name:** For its occurrence on the continent of Antarctica.

**Type Material:** n.d.

**References:** (1) Torii, T. and J. Ossaka (1965) Antarcticite: a new mineral, calcium chloride hexahydrate, discovered in Antarctica. *Science*, 149, 975–977. (2) (1965) *Amer. Mineral.*, 50, 2095 (abs. ref. 1). (3) Dunning, G.E. and J.F. Cooper, Jr. (1969) A second occurrence of antarcticite, from Bristol Dry Lake, California. *Amer. Mineral.*, 54, 1018–1025. (4) Agron, P.A. and W.R. Busing (1986) Calcium and strontium dichloride hexahydrates by neutron diffraction. *Acta Cryst.*, C42, 141–143. (5) Schiffries, C.M. (1990) Liquid-absent aqueous fluid inclusions and phase equilibria in the system CaCl<sub>2</sub>–NaCl–H<sub>2</sub>O. *Geochim. Cosmochim. Acta*, 54, 611–619. (6) Eckstein, Y., M. Manecki, M. Matyjasik, and E. Rosenthal (1994) Hydrochemical stratification and processes in three “blue holes” on North Andros Island, Bahamas. *Geol. Soc. Amer. Prog. and Abs.*, 26, 360 (abs.).

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