

Sheldrickite

NaCa₃(CO₃)₂F₃•H₂O

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Crystal Data: Hexagonal. *Point Group:* 3. Blocky crystals, to 0.1 mm; in fibrous aggregates and thin flakes. *Twinning:* By reflection on {001}.

Physical Properties: *Cleavage:* Parting on {001}, good. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3 D(meas.) = 2.86(4) D(calc.) = 2.86

Optical Properties: Semitransparent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous to silky. *Optical Class:* Uniaxial (+). $\omega = 1.538(2)$ $\epsilon = 1.563(4)$

Cell Data: *Space Group:* $P3_2$. $a = 6.726(2)$ $c = 15.044(4)$ $Z = 3$

X-ray Powder Pattern: Mont Saint-Hilaire, Canada. 2.010 (100), 2.791 (50), 2.508 (40), 1.939 (40), 5.809 (30), 5.010 (30), 3.358 (30)

Chemistry:	(1)	(2)
CO ₂	[25.81]	26.02
CaO	48.84	49.73
SrO	0.36	
Na ₂ O	9.16	9.16
F	16.17	16.85
H ₂ O	5.61	5.33
-O = F ₂	6.81	7.09
Total	[99.14]	100.00

(1) Mont Saint-Hilaire, Canada; by electron microprobe, average of three analyses, H₂O by TGA, CO₂ calculated from structure analysis, (CO₃)²⁻ and H₂O confirmed by IR; corresponds to Na_{1.01}(Ca_{2.97}Sr_{0.01})_{Σ=2.98}(CO₃)₂[F_{2.90}(OH)_{0.07}]_{Σ=2.97}•H₂O. (2) NaCa₃(CO₃)₂F₃•H₂O.

Occurrence: A very rare late-stage hydrothermal mineral in a marble xenolith in nepheline syenite associated with an intrusive alkalic gabbro-syenite complex.

Association: Shortite, pectolite, microcline, polyolithionite, arfvedsonite, molybdenite.

Distribution: From Mont Saint-Hilaire, Quebec, Canada.

Name: To honor Professor George M. Sheldrick (1942–), Institute for Organic Chemistry, University of Göttingen, Göttingen, Germany, author of widely-used crystal structural refinement computer programs.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 81530, 81537–81539.

References: (1) Grice, J.D., R.A. Gault, and J. Van Velthuisen (1997) Sheldrickite, a new sodium-calcium-fluorocarbonate mineral species from Mont Saint-Hilaire, Quebec. *Can. Mineral.*, 35, 181–187. (2) (1997) *Amer. Mineral.*, 82, 1262 (abs. ref. 1).