

Walkerite**Ca₁₆(Mg, Li)₂[B₁₃O₁₇(OH)₁₂]₄Cl₆·28H₂O**

Crystal Data: Orthorhombic. *Point Group:* *mm*2. As bladed to fibrous crystals, to 2 mm, elongate along [001], showing {100}, {010}, and {001}; commonly in bundles to 7 mm.

Physical Properties: *Cleavage:* None. *Fracture:* Splintery. *Tenacity:* Brittle. Hardness = 3
D(meas.) = 2.07 D(calc.) = 2.05

Optical Properties: Transparent to translucent. *Color:* Colorless to white. *Streak:* White.
Luster: Vitreous.

Optical Class: Biaxial (+). $\alpha = 1.516(2)$ $\beta = 1.532(2)$ $\gamma = 1.554(2)$ $2V(\text{meas.}) = 82(3)^\circ$
 $2V(\text{calc.}) = 82^\circ$ *Orientation:* $X = a, Y = b, Z = c$.

Cell Data: *Space Group:* *Pba*2. $a = 15.52(1)$ $b = 22.74(1)$ $c = 8.76(4)$ $Z = 1$

X-ray Powder Pattern: Penobsquis, near Sussex, Kings County, New Brunswick, Canada.
12.80 (100), 7.785 (80), 6.319 (40), 5.649 (30), 3.176 (30), 2.570 (30), 6.805 (20)

Chemistry:	(1)
Li ₂ O	0.12
Na ₂ O	0.13
K ₂ O	0.07
CaO	23.05
FeO	0.32
MgO	0.58
Cl	4.91
B ₂ O ₃	47.17
H ₂ O	25.48
- O = Cl	1.11
Total	100.72

(1) Penobsquis, near Sussex, Kings County, New Brunswick, Canada; electron microprobe analysis supplemented by IR spectroscopy and ICP-MS for Li and B, H₂O by TGA; corresponding to (Ca_{15.60}Na_{0.16}K_{0.06}) $\Sigma=15.82$ (Mg_{0.55}Li_{0.31}Fe_{0.17}) $\Sigma=1.03$ B_{51.43}O₆₈(OH)₄₈[Cl_{5.26}(OH)_{0.74}] $\Sigma=6.00$ H_{2.53}·28H₂O.

Occurrence: In a marine evaporite deposit.

Association: Halite, hydroboracite, boracite, hilgardite, volkovskite, szaibelyite, anhydrite.

Distribution: At the Potash Corporation of Saskatchewan (New Brunswick Division) mine at Penobsquis, near Sussex, Kings County, New Brunswick, Canada.

Name: Honors Canadian geologist Thomas Leonard *Walker* (1867-1942) for his contributions to mineralogy in general and to the study of borates from the Minas Basin, Nova Scotia, in particular.

Type Material: Canadian Museum of Nature, Ottawa, Ontario, Canada (CMNMC 83379 and CMNMC 83380).

References: (1) Grice, J.D., R.A. Gault, J. Van Velthuisen, and A. Pratt (2002) Walkerite, a new borate mineral species in an evaporitic sequence from Sussex, New Brunswick, Canada. *Can. Mineral.*, 40, 1675-1686. (2) (2003) *Amer. Mineral.*, 88, 1839-1840 (abs. ref. 1).