Brianroulstonite $Ca_3[B_5O_6(OH)_6](OH)Cl_2 \cdot 8H_2O$

Crystal Data: Monoclinic, pseudohexagonal. *Point Group:* m. As thin micaceous {010} lamellae, to 0.5 mm, in aggregates. *Twinning:* About [102] on {010}, ubiquitous but observed only by X-ray diffraction.

Physical Properties: *Cleavage:* On {010}, perfect. *Tenacity:* Flexible. Hardness = ∼5
D(meas.) = 1.97(3) D(calc.) = 1.93

Optical Properties: Transparent to translucent. *Color:* Colorless to white. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (–). *Orientation:* $Y = a$; $Z = b$; $X \wedge c = 30°$. $\alpha = 1.506(2)$ $\beta = 1.527(2)$ $\gamma = 1.532(2)$ 2V(meas.) = 56(1)° 2V(calc.) = 51.4°

Cell Data: *Space Group:* Pa. $a = 17.367(4)$ $b = 8.079(2)$ $c = 8.693(2)$ $\beta = 121.56(2)°$
Z = 2

X-ray Powder Pattern: Penobsquis mine, Canada; admixed with halite.
8.10 (10), 4.04 (4), 3.56 (2), 2.834 (2), 2.535 (2), 2.276 (2), 7.06 (1)

Chemistry:

	(1)	(2)	(3)
B_2O_3	[33.92]	28.76	28.80
CaO	32.85	27.85	27.84
K_2O	0.05		
Cl	13.79	11.69	11.73
H_2O	[40.44]	34.29	34.28
$-O = Cl_2$	3.11	2.59	2.65
Total	[117.94]	[100.00]	100.00

(1) Penobsquis mine, Canada; by electron microprobe, average of four analyses, high total from severe burnup in the electron beam, B_2O_3 and H_2O by stoichiometry from crystal-structure analysis. (2) Analysis (1) recalculated to 100%. (3) $Ca_3[B_5O_6(OH)_6](OH)Cl_2 \cdot 8H_2O$.

Occurrence: Very rare in residues from halite–sylvite evaporites.

Association: Halite, hilgardite, pringleite, trembathite, sellaite, fluorite, hematite, muscovite, penobsquisite, "clay".

Distribution: From the Penobsquis evaporite deposit, near Sussex, New Brunswick, Canada.

Name: Honors Brian V. Roulston (1948–), geologist and specialist in evaporite deposits.

Type Material: Canadian Museum of Nature, Ottawa, Canada, 81500.

References: (1) Grice, J.D., R.A. Gault, and J. Van Velthuizen (1997) Brianroulstonite: a new borate mineral with a sheet structure. Can. Mineral., 35, 751–758. (2) (1998) Amer. Mineral., 83, 400 (abs. ref. 1).