Carboborite $Ca_2Mg[B(OH)_4]_2(CO_3)_2 \cdot 4H_2O$.

Crystal Data: Monoclinic. *Point Group:* $2/m$. As steep pseudorhombohedral crystals, to 3 mm, with dominant {101} and {110}, modified by {011}, {100}, {121}, and {101}.

Physical Properties: *Cleavage:* {101}, perfect; {110}, distinct; {001}, imperfect. Hardness = 2 D(meas.) = 2.12 D(calc.) = 2.15 Fluoresces white under UV; pale green phosphorescence.

Optical Properties: Translucent. *Color:* Colorless. *Luster:* Vitreous. *Optical Class:* Biaxial (–). *Orientation:* $Y = b$; $X \wedge a = 10°19'$; $Z \wedge c = 12°$. $\alpha = 1.507(1)$ $\beta = 1.546(1)$ $\gamma = 1.569(1)$ 2V(meas.) = 75°

Cell Data: *Space Group:* $P2_1/n$. $a = 11.011(3)$ $b = 6.674(1)$ $c = 10.692(5)$ $\beta = 116.64(3)°$ Z = 2

X-ray Powder Pattern: China.
5.63 (10), 4.315 (10), 3.136 (8), 2.160 (8), 2.727 (7), 2.437 (6), 4.86 (5)

Chemistry:

	(1)	(2)
SO_3	0.00	
CO_2	10.46	19.38
B_2O_3	15.70	15.33
MgO	9.08	8.87
CaO	24.21	24.69
Na_2O	0.27	
K_2O	trace	
Cl	0.00	
H_2O	39.78	31.73
insol.	1.17	
Total	100.67	100.00

(1) China. (2) $Ca_2Mg[B(OH)_4]_2(CO_3)_2 \cdot 4H_2O$.

Occurrence: In a lacustrine borate deposit.

Association: Ulexite, hydroboracite, gypsum.

Distribution: From China, at an unspecified locality [Dafangshan, Qinghai Plateau, Tibet].

Name: For the essential anionic chemical components, CARBOnate and BORate.

Type Material: n.d.

References: (1) Hsien-Te Hsieh, Tze-Chiang Chien, and Lai-Pao Liu (1964) The new mineral carboborite, $MgCa_2[CO_3|B_2O_5] \cdot 10H_2O$. Scientia Sinica, 13, 813–821 (in Russian). (2) (1965) Amer. Mineral., 50, 262–263 (abs. ref. 1). (3) Ma Zhesheng, Shi Nicheng, Shen Jinchuan, and Peng Zhizhong (1981) The refinement of the crystal structure of carboborite $MgCa_2[CO_3]_2[B(OH)_4]_2 \cdot 4H_2O$. Bull. Minéral., 104, 578–581.