Gowerite $CaB_6O_8(OH)_4 \cdot 3H_2O$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Prismatic to acicular crystals, striated and elongated along [001], to 1.5 mm; typically as globular clusters of divergent bladed crystals.

Physical Properties: *Cleavage:* {001}, distinct; {100}, imperfect. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 3 D(meas.) = 2.00(1) D(calc.) = 2.003 Slowly soluble in H_2O.

Optical Properties: Transparent. *Color:* Colorless, white in aggregates; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (+). *Orientation:* $Y = b$; $Z \wedge c = 27°$. *Dispersion:* $r > v$, slight.
$\alpha = 1.484(2)$ $\beta = 1.501(2)$ $\gamma = 1.550(2)$ 2V(meas.) = n.d. 2V(calc.) = 63°

Cell Data: *Space Group:* $P2_1/a$. $a = 12.882(4)$ $b = 16.360(7)$ $c = 6.558(4)$
$\beta = 121.62(5)°$ Z = 4

X-ray Powder Pattern: Death Valley, California, USA.
8.23 (100), 9.20 (25), 4.094 (20), 3.88 (10b), 3.345 (10), 6.57 (5), 5.37 (5)

Chemistry:

	(1)	(2)
B_2O_3	58.10	58.83
CaO	15.50	15.80
SrO	0.71	
H_2O	25.76	25.37
Total	100.07	100.00

(1) Death Valley, California, USA; average of two analyses, Sr by flame photometry, H_2O by TGA; corresponds to $Ca_{1.00}B_{5.90}O_8(OH)_4 \cdot 3.05H_2O$. (2) $CaB_6O_8(OH)_4 \cdot 3H_2O$.

Occurrence: A rare weathering product of colemanite and priceite.

Association: Meyerhofferite, nobleite, hydroboracite, ulexite, ginorite, gypsum.

Distribution: From the Hard Scramble claim, the Mott colemanite prospect, and two other nearby occurrences south of Furnace Creek Wash, Death Valley, Inyo Co., California, USA.

Name: To honor Harrison Preston Gower (1890–1967), Mining Manager, U.S. Borax and Chemical Company, for his assistance to scientific studies of Death Valley borate deposits.

Type Material: National Museum of Natural History, Washington, D.C., USA, 136417, 147960.

References: (1) Erd, R.C., J.F. McAllister, and H. Almond (1959) Gowerite, a new hydrous calcium borate, from the Death Valley region, California. Amer. Mineral., 44, 911–919.
(2) Christ, C.L. and J.R. Clark (1960) X-ray crystallography and crystal chemistry of gowerite, $CaO \cdot 3B_2O_3 \cdot 5H_2O$. Amer. Mineral., 45, 230–234. (3) Konnert, J.A., J.R. Clark, and C.L. Christ (1972) Gowerite, $CaB_5O_8(OH) \cdot B(OH)_3 \cdot 3H_2O$: crystal structure and comparison with related borates. Amer. Mineral., 57, 381–396.