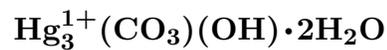


# Peterbaylissite



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**Crystal Data:** Orthorhombic, pseudotetragonal. *Point Group:*  $2/m\ 2/m\ 2/m$ . Euhedral to subhedral crystals, to 0.2 mm, elongated parallel [001], wedgelike, may be platy; isolated and in clusters.

**Physical Properties:** *Fracture:* Irregular. *Tenacity:* Brittle. Hardness = < 5  
D(meas.) = n.d. D(calc.) = 7.14

**Optical Properties:** Opaque. *Color:* Black to dark red-brown; in polished section, gray with slight blue tinge. *Streak:* Dark brownish black. *Luster:* Submetallic to adamantine.  
*Optical Class:* Biaxial. *Anisotropism:* Weak, dark gray to brown. *Birefractance:* Weak to moderate.

$R_1$ – $R_2$ : (400) 12.0–13.2, (420) 11.8–12.8, (440) 11.6–12.6, (460) 11.5–12.3, (480) 11.3–12.1, (500) 11.2–11.9, (520) 11.1–11.7, (540) 11.0–11.6, (560) 10.9–11.5, (580) 10.9–11.5, (600) 10.8–11.4, (620) 10.7–11.3, (640) 10.8–11.2, (660) 10.6–11.2, (680) 10.6–11.2, (700) 10.6–11.2

**Cell Data:** *Space Group:*  $Pcab$ .  $a = 11.130(2)$   $b = 11.139(3)$   $c = 10.725(3)$   $Z = 8$

**X-ray Powder Pattern:** Clear Creek claim, California, USA.  
2.648 (100), 2.969 (70), 2.786 (70), 2.419 (60), 4.84 (50), 6.35 (40), 4.95 (40)

<b>Chemistry:</b>		(1)	(2)
	CO <sub>2</sub>	n.d.	6.16
	Hg <sub>2</sub> O	87.4	87.54
	H <sub>2</sub> O	n.d.	6.30
	Total		100.00

(1) Clear Creek claim, California, USA; by electron microprobe, average of two analyses; (CO<sub>3</sub>)<sup>2-</sup>, (OH)<sup>1-</sup>, H<sub>2</sub>O, confirmed by IR, the chemical formula determined by crystal-structure analysis. (2) Hg<sub>3</sub>(CO<sub>3</sub>)(OH)•2H<sub>2</sub>O.

**Polymorphism & Series:** Dimorphous with clearcreekite.

**Occurrence:** Very rare in a mercury deposit in silicate–carbonate rock, hydrothermally altered from serpentinite, probably formed as an alteration product of cinnabar.

**Association:** Ferroan magnesiochromite, ferroan magnesite, cinnabar, metacinnabar, mercury, quartz.

**Distribution:** From near the Clear Creek mercury mine, New Idria district, San Benito Co., California, USA.

**Name:** Honoring Dr. Peter Bayliss (1936– ), Professor of Mineralogy, University of Calgary, Calgary, Canada, for his many contributions to mineralogy.

**Type Material:** The Natural History Museum, London, England, 1993,431 and E.1492; Canadian Geological Survey, Ottawa, Canada, 67533.

**References:** (1) Roberts, A.C., T.S. Ercit, L.A. Groat, A.J. Criddle, R.C. Erd, and R.S. Williams (1995) Peterbaylissite, Hg<sub>3</sub><sup>1+</sup>(CO<sub>3</sub>)(OH)•2H<sub>2</sub>O, a new mineral species from the Clear Creek claim, San Benito Co., California. *Can. Mineral.*, 33, 47–53. (2) (1995) *Amer. Mineral.*, 80, 1074–1075 (abs. ref. 1).