

**Priceite****Ca<sub>2</sub>B<sub>5</sub>O<sub>7</sub>(OH)<sub>5</sub>•H<sub>2</sub>O**

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**Crystal Data:** Monoclinic. *Point Group:* 2/m. Crystals are platy with a rhombic outline, to 20 μm, aggregated in books; typically cryptocrystalline, nodular to massive.

**Physical Properties:** *Fracture:* Conchoidal to earthy. *Tenacity:* Tough to friable. Hardness = 3–3.5, if compact. D(meas.) = 2.42 D(calc.) = 2.427

**Optical Properties:** Semitransparent. *Color:* White, colorless in transmitted light. *Luster:* Porcelaneous to earthy.

*Optical Class:* Biaxial (-). *Dispersion:*  $r > v$ , rather strong.  $\alpha = 1.571\text{--}1.575$   
 $\beta = 1.590\text{--}1.596$   $\gamma = 1.591\text{--}1.597$   $2V(\text{meas.}) = 32(2)^\circ$   $2V(\text{calc.}) = 42^\circ 56'$

**Cell Data:** *Space Group:*  $P2_1/c$ .  $a = 11.623(1)$   $b = 6.976(1)$   $c = 12.350(1)$   
 $\beta = 110.70(1)^\circ$   $Z = 4$

**X-ray Powder Pattern:** Death Valley, California, USA.  
10.92 (10), 3.63 (10), 5.46 (8), 3.49 (7), 2.72 (6), 2.18 (5), 4.29 (4)

**Chemistry:**

	(1)	(2)
B <sub>2</sub> O <sub>3</sub>	49.90	49.84
CaO	32.06	32.11
H <sub>2</sub> O	18.04	18.05
Total	[100.00]	100.00

(1) Death Valley, California, USA; average of three analyses, recalculated from an original average total of 99.57%. (2) Ca<sub>2</sub>B<sub>5</sub>O<sub>7</sub>(OH)<sub>5</sub>•H<sub>2</sub>O.

**Occurrence:** Deposited from hot spring and solfataric deposits, also a component of borate-enriched evaporites; may be derived from colemanite.

**Association:** Colemanite, ulexite, gypsum, aragonite, calcite.

**Distribution:** In the USA, from eight km north of Chetco, Curry Co., Oregon; in California, from a number of occurrences around Death Valley, as the Monte Blanco area, in Corkscrew Wash, and the Furnace Creek district, Inyo Co. From the Penobsquis and Salt Springs evaporite deposits, near Sussex, New Brunswick, Canada. At Mesa del Almo, 13 km southeast of Magdalena, Sonora, Mexico. In Turkey, from the Sultançayir borate deposit, Bursa Province, and in several deposits in the Bigadiç borate district, Balıkesir Province. From the Inder borate deposit, Kazakhstan. At Meldon, Okehampton, Devon, England. From the Pöhla mine, Schwarzenberg, Saxony, Germany. At Radotin, Czech Republic.

**Name:** To honor Thomas Price (1837–?), metallurgist, San Francisco, California, USA, who provided the first chemical analyses of the species.

**References:** (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 341–343. (2) Kramer, H. and R.D. Allen (1956) A restudy of bakerite, priceite, and veatchite. *Amer. Mineral.*, 41, 689–700. (3) Fleet, M.E. and S. Muthupari (2000) Boron K-edge XANES of borate and borosilicate minerals. *Amer. Mineral.*, 85, 1009–1021. (4) Wallwork, K.S., A. Pring, M.R. Taylor, and B.A. Hunter (2002) The structure of priceite, a basic hydrated calcium borate, by *ab initio* powder-diffraction methods. *Chem. Abs.*, 40, 1199–1206.