

Meyerhofferite

CaB₃O₃(OH)₅•H₂O

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Rare as complex acicular to crude crystals, to ~4 cm, in fibrous divergent, radiating aggregates, commonly reticulated; may be nodular.

Physical Properties: *Cleavage:* On {010}, perfect; in traces on {100} and {1 $\bar{1}$ 0}.
Hardness = 2 D(meas.) = 2.120 D(calc.) = 2.125

Optical Properties: Transparent to translucent. *Color:* Colorless to white, pale yellow.

Luster: Vitreous to silky.

Optical Class: Biaxial (-). *Orientation:* X (165°, 62°); Y (45°30', 47°); Z (-83°, 55°) [with c (0°, 0°) and b* (0°, 90°) using (ϕ , ρ)]. *Dispersion:* $r > v$. $\alpha = 1.500$ $\beta = 1.535$ $\gamma = 1.560$
2V(meas.) = 78°

Cell Data: *Space Group:* $P\bar{1}$. $a = 6.632(1)$ $b = 8.337(1)$ $c = 6.4748(6)$ $\alpha = 90.81(1)^\circ$
 $\beta = 101.97(1)^\circ$ $\gamma = 86.76(1)^\circ$ $Z = 2$

X-ray Powder Pattern: Mt. Blanco, California, USA. (ICDD 12-411).
8.31 (100), 6.47 (100), 4.97 (25), 4.15 (20), 3.15 (20), 3.07 (20), 2.501 (20)

Chemistry:

	(1)	(2)
B ₂ O ₃	46.40	46.71
CaO	25.45	25.08
H ₂ O ⁺	27.75	
H ₂ O ⁻	1.01	
H ₂ O		28.21
Total	100.61	100.00

(1) Mt. Blanco, California, USA. (2) CaB₃O₃(OH)₅•H₂O.

Occurrence: Typically a minor component of sedimentary or lake-bed borate deposits.

Association: Inyoite, colemanite, hydroboracite, ulexite.

Distribution: In the USA, from the Mt. Blanco deposit and along Gower Gulch, Furnace Creek district, Death Valley, Inyo Co., and in the Kramer borate deposit, Boron, Kern Co., California. At Mesa del Almo, 13 km southeast of Magdalena, Sonora, Mexico. In Argentina, at the Anita mine, Sijes district, and in the Tincalayu borax deposit, Salar del Hombre Muerto, Salta Province. In Turkey, from many deposits in the Bigadiç borate district, Balıkesir Province; in the Killik and Espey borate mines, near Emet, Kütahya Province. At the Inder borate deposit, Kazakhstan.

Name: Honoring Professor Wilhelm Meyerhoffer (1864–1906), German chemist, who first synthesized the compound.

Type Material: Harvard University, Cambridge, Massachusetts, 134572; National Museum of Natural History, Washington, D.C., USA, 87237, 93640.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 356–358. (2) Burns, P.C. and F.C. Hawthorne (1993) Hydrogen bonding in meyerhofferite: an X-ray and structure energy study. Can. Mineral., 31, 305–312.