

Henmilite

Ca₂CuB₂(OH)₁₂

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Prismatic pinacoidal crystals exhibit {100}, {010}, {101}, {102}, {110}, {0 $\bar{1}$ 1}, { $\bar{1}$ 42}, to 3 mm; massive.

Physical Properties: *Tenacity:* "Fragile". Hardness = < 2.5 D(meas.) = 2.51
D(calc.) = 2.523

Optical Properties: Transparent. *Color:* Blue-violet. *Streak:* Pale violet to nearly white.
Luster: Vitreous.

Optical Class: Biaxial (-). *Pleochroism:* Strong; *X* = pale pink; *Y* = pale purple; *Z* = very pale blue. *Orientation:* Inclined extinction. $\alpha = 1.585(2)$ $\beta = [1.608]$ $\gamma = 1.615(2)$
2*V*(meas.) = $\sim 58^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.7617(5)$ $b = 7.9774(6)$ $c = 5.6488(4)$
 $\alpha = 109.611(6)^\circ$ $\beta = 91.473(7)^\circ$ $\gamma = 83.686(7)^\circ$ $Z = 1$

X-ray Powder Pattern: Fuka, Japan.

5.25 (vs), 4.35 (s), 3.709 (s), 3.302 (s), 2.494 (sb), 2.427 (sb), 2.346 (s)

Chemistry:

	(1)	(2)
B ₂ O ₃	19.49	18.85
CuO	21.56	21.53
CaO	29.24	30.36
H ₂ O	29.57	29.26
Total	99.86	100.00

(1) Fuka, Japan; corresponds to Ca_{1.91}Cu_{0.99}B_{2.05}(OH)₁₂. (3) Ca₂CuB₂(OH)₁₂.

Occurrence: Very rare, in cavities in borate veins in contact-metasomatized limestone.

Association: Pentahydroborite, tenorite, sillenite, bultfonteinite, cuspidine, thaumasite, brucite, calcite.

Distribution: From Fuka, near Bicchu, Okayama Prefecture, Japan.

Name: Honors Professor Kitinosuke Henmi (1919–1997), and his daughter Dr. Chiyoko Henmi (1949–), Department of Earth Science, Okayama University, Okayama, Japan, in recognition of their mineralogical work on the skarn deposit at Fuka, Japan.

Type Material: National Science Museum, Tokyo, Japan, M-24641; National Museum of Natural History, Washington, D.C., USA, 165482.

References: (1) Nakai, I., H. Okada, K. Masutomi, E. Koyama, and K. Nagashima (1986) Henmilite, Ca₂Cu(OH)₄[B(OH)₄]₂, a new mineral from Fuka, Okayama Prefecture, Japan. Part I. Occurrence and description. Part II. Crystal structure. *Amer. Mineral.*, 71, 1234–1239. (2) Kusachi, I. (1992) New data on mineralogical properties of henmilite. *J. Mineral. Soc. Japan*, 21, 127–130 (in Japanese with English abs.).