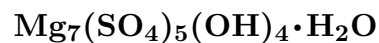


Caminite



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Crystal Data: Tetragonal. *Point Group:* $4/m\ 2/m\ 2/m$. As imperfect dipyramidal crystals, to 500 μm ; botryoidal.

Physical Properties: *Cleavage:* {001}, good, possible. Hardness = 2.5 $D(\text{meas.}) = 2.58$ – 2.79 $D(\text{calc.}) = [2.14]$

Optical Properties: Transparent. *Color:* White or colorless; colorless in transmitted light. *Optical Class:* Uniaxial (–). $\omega = 1.534$ $\epsilon = 1.532$

Cell Data: *Space Group:* $I4_1/amd$ (synthetic). $a = 5.242(1)$ $c = 12.995(3)$ $Z = 4$

X-ray Powder Pattern: East Pacific Rise.

3.345 (100), 3.220 (80), 1.871 (50), 1.620 (25), 2.062 (20), 2.041 (20), 1.854 (20)

Chemistry:

	(1)	(2)
SO ₃	52.7	54.35
MgO	37.3	38.31
CaO	trace	
H ₂ O	[10.0]	7.34
Total	[100.0]	100.00

(1) East Pacific Rise; by electron microprobe, H₂O by difference. (2) $\text{Mg}_7(\text{SO}_4)_5(\text{OH})_4 \cdot \text{H}_2\text{O}$.

Occurrence: Formed by the reaction of sea water with hydrothermal fluids in a midocean ridge submarine chimney vent. Unstable below 130° C., below which it hydrates and redissolves in sea water.

Association: Anhydrite.

Distribution: Along the East Pacific Rise at 21° N.

Name: From the Latin *caminus*, for *chimney*, as the mineral occurs in undersea black-smoker chimneys.

Type Material: n.d.

References: (1) Haymon, R.M. and M. Kastner (1986) Caminite: A new magnesium-hydroxide-sulfate-hydrate mineral found in a submarine hydrothermal deposit, East Pacific Rise, 21°N. *Amer. Mineral.*, 71, 819–825. (2) Keefer, K.D., M.F. Hochella, Jr., and B.H.W.S. De Jong (1981) The structure of the magnesium hydroxide sulfate hydrate $\text{MgSO}_4 \cdot \frac{1}{3}\text{Mg}(\text{OH})_2 \cdot \frac{1}{3}\text{H}_2\text{O}$. *Acta Cryst.*, 37, 1003–1006.