

Calcioancylite-(Nd)**Ca(Nd, Ce, Gd, Y)₃(CO₃)₄(OH)₃·H₂O**

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Crystal Data: Monoclinic, pseudo-orthorhombic. *Point Group:* *m*. As dipyramidal tabular crystals, to 1 mm, typically in subparallel aggregates.

Physical Properties: *Fracture:* Irregular. *Tenacity:* Brittle. *Hardness* = 4–4.5
D(meas.) = > 4.02 D(calc.) = 4.08

Optical Properties: Transparent. *Color:* Pale pink. *Streak:* White. *Luster:* Vitreous.
Optical Class: Biaxial (-). *Orientation:* *Z* = *c*. *Dispersion:* *r* < *v*, weak. $\alpha = 1.660(1)$
 $\beta = 1.725(1)$ $\gamma = 1.765(1)$ $2V(\text{meas.}) = 70^\circ$ $2V(\text{calc.}) = 74^\circ$

Cell Data: *Space Group:* *Pm*. *a* = 7.212(2) *b* = 4.976(2) *c* = 8.468(2) $\beta = 90.04(3)^\circ$
Z = 1

X-ray Powder Pattern: Baveno, Italy.
4.26 (10), 2.905 (9), 2.048 (8), 3.67 (7), 2.320 (7), 1.979 (7), 5.49 (6)

| Chemistry: | (1) | | (1) | |
|-------------------|--------------------------------|-------|--------------------------------|-----------------|
| | CO ₂ | 23.47 | Gd ₂ O ₃ | 6.68 |
| | La ₂ O ₃ | 3.16 | Dy ₂ O ₃ | 1.74 |
| | Ce ₂ O ₃ | 14.18 | Tm ₂ O ₃ | 0.83 |
| | Pr ₂ O ₃ | 3.23 | Y ₂ O ₃ | 3.93 |
| | Nd ₂ O ₃ | 20.23 | CaO | 9.05 |
| | Sm ₂ O ₃ | 7.63 | SrO | 0.00 |
| | Eu ₂ O ₃ | 0.00 | H ₂ O | [5.87] |
| | | | <u>Total</u> | <u>[100.00]</u> |

(1) Baveno, Italy; by electron microprobe, CO₂ by elemental microanalyzer, H₂O by difference; corresponding to Ca_{1.20}(Nd_{0.90}Ce_{0.64}Sm_{0.33}Gd_{0.28}Y_{0.26}Pr_{0.15}La_{0.14}Dy_{0.07}Tm_{0.03})_{Σ=2.80}(CO₃)_{3.98}(OH)_{2.84}·1.01H₂O.

Occurrence: Coating miarolitic cavities in granite.

Association: Orthoclase, quartz, albite.

Distribution: From the Montecatini quarry, Baveno, Piedmont, Italy.

Name: For *calcioancylite* with dominant *neodymium*.

Type Material: Municipal Natural History Museum, Milan, Italy, M29872.

References: (1) Orlandi, P., M. Pasero, and G. Vezzalini (1990) Calcio-ancylite-(Nd), a new REE-carbonate from Baveno, Italy. *Eur. J. Mineral.*, 2, 413–418. (2) (1991) *Amer. Mineral.*, 76, 1729 (abs. ref. 1).