Calcioancylite-(Nd) $Ca(Nd,Ce,Gd,Y)_3(CO_3)_4(OH)_3 \cdot H_2O$

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(meas.) = 70° 2V(calc.) = 74°

Cell Data: *Space Group:* Pm. $a = 7.212(2)$ $b = 4.976(2)$ $c = 8.468(2)$ $\beta = 90.04(3)°$
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_2O_3	6.68
La_2O_3	3.16	Dy_2O_3	1.74
Ce_2O_3	14.18	Tm_2O_3	0.83
Pr_2O_3	3.23	Y_2O_3	3.93
Nd_2O_3	20.23	CaO	9.05
Sm_2O_3	7.63	SrO	0.00
Eu_2O_3	0.00	H_2O	[5.87]
		Total	[100.00]

(1) Baveno, Italy; by electron microprobe, CO_2 by elemental microanalyzer, H_2O by difference; corresponding to $Ca_{1.20}(Nd_{0.90}Ce_{0.64}Sm_{0.33}Gd_{0.28}Y_{0.26}Pr_{0.15}La_{0.14}Dy_{0.07}Tm_{0.03})_{\Sigma=2.80}(CO_3)_{3.98}(OH)_{2.84} \cdot 1.01H_2O$.

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).