

**Crystal Data:** Monoclinic (pseudo-trigonal). *Point Group:* 2, *m* or 2/*m*. As nuclei, to 5 mm, in doubly-terminated, pseudo-hexagonal crystals with corrugated faces, to 8.2 cm. The crystals display acute pseudodipyramids with horizontally striated faces, terminated by a pinacoid. Crystals appear prismatic due to oscillatory combination of steep pyramids. Also, as crusts of microcrystals.

**Physical Properties:** *Cleavage:* Distinct on {001}. *Fracture:* Laminated, conchoidal or uneven. *Tenacity:* Brittle. Hardness = 4-5 D(meas.) = n.d. D(calc.) = 4.273

**Optical Properties:** Transparent. *Color:* Yellow-green to white, colorless in transmitted light.

*Streak:* White. *Luster:* Vitreous to dull.

*Optical Class:* Pseudo-uniaxial (+).  $\omega = 1.670(2)$   $\varepsilon = 1.782(5)$

**Cell Data:** Space Group: *C2*, *Cm* or *C2/m*.  $a = 12.356(1)$   $b = 7.1368(7)$   $c = 28.299(3)$   
 $\beta = 98.342(4)^\circ$   $Z = 12$

**X-ray Powder Pattern:** Mula mine, Tapera village, Novo Horizonte, Bahia, Brazil.  
 2.827 (100), 3.555 (88), 2.055 (58), 13.95 (55), 1.950 (38), 4.655 (37), 1.880 (36)

| Chemistry:                     | (1)     | (2)     | (3)    |
|--------------------------------|---------|---------|--------|
| CaO                            | 10.10   | 9.45    | 10.46  |
| Y <sub>2</sub> O <sub>3</sub>  | 0.52    | 0.51    |        |
| La <sub>2</sub> O <sub>3</sub> | 24.77   | 24.82   | 60.80  |
| Ce <sub>2</sub> O <sub>3</sub> | 11.16   | 12.99   |        |
| Pr <sub>2</sub> O <sub>3</sub> | 4.73    | 7.95    |        |
| Nd <sub>2</sub> O <sub>3</sub> | 15.82   | 14.77   |        |
| Sm <sub>2</sub> O <sub>3</sub> | 1.25    | 1.24    |        |
| Eu <sub>2</sub> O <sub>3</sub> | 0.07    | 0.07    |        |
| F                              | 7.30    | 6.71    | 7.09   |
| CO <sub>2</sub>                | [24.50] | [24.70] | 24.63  |
| -O = F <sub>2</sub>            | 3.07    | 2.82    | 2.98   |
| Total                          | 97.15   | 100.39  | 100.00 |

(1) Mula mine, Novo Horizonte, Bahia, Brazil; average of 25 electron microprobe analyses supplemented by IR and Raman spectroscopy, CO<sub>2</sub> calculated for charge neutrality from TGA; corresponds to Ca<sub>0.89</sub>(La<sub>0.83</sub>Nd<sub>0.51</sub>Ce<sub>0.37</sub>Pr<sub>0.16</sub>Sm<sub>0.04</sub>Y<sub>0.03</sub>) $\Sigma=1.94$ C<sub>3.03</sub>O<sub>8.91</sub>F<sub>2.09</sub>. (2) Do.; corresponds to Ca<sub>0.91</sub>(La<sub>0.82</sub>Nd<sub>0.47</sub>Ce<sub>0.43</sub>Pr<sub>0.26</sub>Sm<sub>0.04</sub>Y<sub>0.02</sub>) $\Sigma=2.04$ (CO<sub>3</sub>)<sub>3</sub>F<sub>1.91</sub>. (3) CaLa<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub>F<sub>2</sub>.

**Occurrence:** In brecciated, hydrothermal quartz veins cemented by chalcedony hosted by metarhyolite formed as a result of peraluminous and alkaline magmatism during continental rifting.

**Association:** Almedaite, hematite, rutile, fluocerite-(Ce), brockite, monazite-(La), rhabdophane-(La), bastnasite-(La).

**Distribution:** At the Mula mine, Tapera village, Novo Horizonte, Bahia, Brazil. Třebíč durbachite massif, SW Moravia, Czech Republic; at the eastern part of Samos island, Greece; in unspecified alkaline rocks in Romania; in the Cerro Boggiani massif, Alto Paraguay Province, Paraguay. In the USA at Bear Lodge carbonatite, Wyoming.

**Name:** Designates the *La*-dominant analogue of *parisite*-(Ce).

**Type Material:** Museum, Institute of Geosciences, University of São Paulo, Brazil (DR1032) and University of Arizona Mineral Museum, Tucson, Arizona, USA (RRUFF Project # R130687).

**References:** (1) Menezes Filho, L.A.D., M.L.S.C. Chaves, N.V. Chukanov, D. Atencio, R. Scholz, I. Pekov, G. Magela da Costa, S.M. Morrison, M.B. Andrade, E.T.F. Freitas, R.T. Downs, and D.I. Belakovskiy (2018) Parisite-(La), ideally CaLa<sub>2</sub>(CO<sub>3</sub>)<sub>3</sub>F<sub>2</sub>, a new mineral from Novo Horizonte, Bahia, Brazil. *Mineral. Mag.*, 82(1), 133-144. (2) (2019) *Amer. Mineral.*, 104(5), 783 (abs. ref 1).