

**Deveroite-(Ce)****Ce<sub>2</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>3</sub>·10H<sub>2</sub>O**

**Crystal Data:** Monoclinic. *Point Group:* 2/m. As sprays of elongated tabular or acicular prisms with wedge-like terminations, to ~50 μm on cervandonite-(Ce).

**Physical Properties:** *Cleavage:* Perfect on {010}. *Fracture:* n.d. *Tenacity:* Brittle.  
Hardness = 2-2.5 D(meas.) = n.d. D(calc.) = 2.352

**Optical Properties:** Transparent. *Color:* Colorless. *Streak:* White. *Luster:* Vitreous.  
*Optical Class:* Biaxial (-). 2V = ~ 77° *Orientation:* Y ^ c = ~ 27°. α = 1.473 β = 1.548  
γ = 1.601 [synthetic La<sub>2</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>3</sub>·10H<sub>2</sub>O]

**Cell Data:** *Space Group:* P2<sub>1</sub>/c. a = 11.240(8) b = 9.635(11) c = 10.339(12) β = 114.41(10)°  
Z = 2

**X-ray Powder Pattern:** Mount Cervandone, Devero Valley, Western-Central Alps, Italy.  
10.266 (100), 4.816 (35), 3.415 (28), 5.125 (25), 4.988 (23), 6.59 (~ 20), 2.05 (~ 15)

<b>Chemistry:</b>	(1)	(2)
CaO	0.34	
C <sub>2</sub> O <sub>3</sub>	[29.7]	29.80
Y <sub>2</sub> O <sub>3</sub>	1.66	
La <sub>2</sub> O <sub>3</sub>	7.29	
Ce <sub>2</sub> O <sub>3</sub>	22.8	45.35
Pr <sub>2</sub> O <sub>3</sub>	2.53	
Nd <sub>2</sub> O <sub>3</sub>	7.53	
Sm <sub>2</sub> O <sub>3</sub>	0.24	
PbO <sub>2</sub>	1.24	
ThO <sub>2</sub>	0.29	
UO <sub>2</sub>	1.05	
H <sub>2</sub> O	[24.8]	24.85
Total	99.47	100.00

(1) Mount Cervandone, Devero Valley, Western-Central Alps, Italy; average of 11 electron microprobe analyses, C<sub>2</sub>O<sub>3</sub> and H<sub>2</sub>O from stoichiometry; corresponding to (Ce<sub>1.01</sub>Nd<sub>0.33</sub>La<sub>0.32</sub>Pr<sub>0.11</sub>Y<sub>0.11</sub>Sm<sub>0.01</sub>Pb<sub>0.04</sub>U<sub>0.03</sub>Th<sub>0.01</sub>Ca<sub>0.04</sub>)<sub>Σ=2.01</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>Σ=2.99</sub>·9.99H<sub>2</sub>O. (2) Ce<sub>2</sub>(C<sub>2</sub>O<sub>4</sub>)<sub>3</sub>·10H<sub>2</sub>O.

**Occurrence:** Precipitated from meteoric waters enriched with oxalic acid likely derived from incomplete oxidation of decaying plant remains (in this case crusty lichens). Rare earth elements provided by the hosting mineral, cervandonite-(Ce), in NYF-type pegmatite dikes.

**Association:** Cervandonite-(Ce), agardite-(Ce), asbecasite, cafarsite, K-feldspar, muscovite, quartz.

**Distribution:** At Mount Cervandone, Devero Valley, Western-Central Alps, Italy.

**Name:** For the locality, Devero Natural Park in Devero Valley, that produced the first specimens and a suffix for the dominant rare earth element.

**Type Material:** Museum of Mineralogy, Department of Geosciences, University of Padova, Italy (MMP M12148).

**References:** (1) Guastoni, A., F. Nestola, P. Gentile, F. Zorzi, M. Alvaro, A. Lanza, L. Peruzzo, M. Schiazza, and N.M. Casati (2013) Deveroite-(Ce): a new REE-oxalate from Mount Cervandone, Devero Valley, Western-Central Alps, Italy. *Mineral. Mag.*, 77(7), 3019-3026. (2) (2016) *Amer. Mineral.*, 101, 487-488 (abs. ref. 1).