

Pepprossiite-(Ce)**(Ce, La)Al₂B₃O₉**

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Crystal Data: Hexagonal. *Point Group:* $\bar{6}m2$. Crystals show a platy hexagonal outline, to 4 mm, in booklike aggregates or rosettes.

Physical Properties: *Cleavage:* Perfect on {0001}; distinct on {11 $\bar{2}$ 0}. *Hardness* = ~ 2
D(meas.) = 3.45(5) D(calc.) = 3.476

Optical Properties: Transparent to translucent. *Color:* Pale yellow, lemon-yellow; colorless in thin section. *Streak:* White. *Luster:* Vitreous.

Optical Class: Uniaxial (+). $\omega = 1.703(2)$ $\epsilon = 1.711(5)$

Cell Data: *Space Group:* $P\bar{6}2m$. $a = 4.612(1)$ $c = 9.374(3)$ $Z = 1$

X-ray Powder Pattern: Monte Cavalluccio, Italy.

3.67 (100), 3.04 (100), 2.458 (75), 2.308 (50), 2.020 (50), 1.953 (50), 1.855 (50)

Chemistry:

| | |
|--------------------------------|-----------------|
| | (1) |
| B ₂ O ₃ | 29.56 |
| ThO ₂ | 1.68 |
| Al ₂ O ₃ | 29.40 |
| Ce ₂ O ₃ | 18.62 |
| La ₂ O ₃ | 14.53 |
| Pr ₂ O ₃ | 4.37 |
| Nd ₂ O ₃ | 2.11 |
| Dy ₂ O ₃ | 0.06 |
| CaO | 1.34 |
| H ₂ O | [0.08] |
| <u>Total</u> | <u>[101.75]</u> |

(1) Monte Cavalluccio, Italy; by electron microprobe, B₂O₃ by ion microprobe, H₂O calculated for stoichiometry; then corresponds to (Ce_{0.40}La_{0.32}Pr_{0.09}Ca_{0.09}Nd_{0.05}Th_{0.02}) $\Sigma=0.97$ Al_{2.04}B_{3.00}[O_{8.97}(OH)_{0.03}] $\Sigma=9.00$.

Occurrence: A very rare mineral, formed in cavities in sanidine ejecta by circulation of pneumatolytic to hydrothermal fluids, probably above 350 °C (Monte Cavalluccio, Italy).

Association: Sanidine, aegirine–augite, hellandite, zircon, titanite, magnetite (Monte Cavalluccio, Italy).

Distribution: In Italy, from Monte Cavalluccio, Campagnano, Lazio; at Cura di Vetralla and Capranico Vicano, Viterbo.

Name: To honor Giuseppe (“Pep”) Rossi (1938–1989), mineralogist and crystallographer, University of Pavia, Pavia, Italy.

Type Material: University of Rome, Rome, Italy; Natural History Museum, Paris, France.

References: (1) Della Ventura, G., G.C. Parodi, A. Mottana, and M. Chaussidon (1993) Pepprossiite-(Ce), a new mineral from Campagnano (Italy): the first anhydrous rare-earth-element borate. *Eur. J. Mineral.*, 5, 53–58. (2) (1993) *Amer. Mineral.*, 78, 1109 (abs. ref. 1). (3) Callegari, A., F. Caucia, F. Mazzi, R. Oberti, L. Ottolini, and L. Ungaretti (2000) The crystal structure of pepprossiite-(Ce), an anhydrous REE and Al mica-like borate with square-pyramidal coordination for Al. *Amer. Mineral.*, 85, 586–592.