

Piemontite-(Pb)**CaPbAl₂Mn³⁺[Si₂O₇][SiO₄]O(OH)**

Crystal Data: Monoclinic. *Point Group:* 2/m. As imperfect blocky crystals or as random aggregates to 2 mm.

Physical Properties: *Cleavage:* Perfect on {001}, distinct on {010}. *Fracture:* n.d.
Tenacity: Brittle. *Hardness:* = 6 *D(meas.):* = n.d. *D(calc.):* = 4.282

Optical Properties: Translucent. *Color:* Purplish red. *Streak:* Pink. *Luster:* Vitreous.
Optical Class: Biaxial (-). $\alpha = 1.835(10)$ $\beta = 1.885(10)$ $\gamma = 1.895(10)$ $2V(\text{meas.}) = 30-40^\circ$
 $2V(\text{calc.}) = 47^\circ$ *Pleochroism:* Moderate, $Z = \text{red-brown}$, $Y = \text{light red-brown}$, $X = \text{pale lilac}$.
Dispersion: $r < v$, strong. *Absorption:* $Z > Y > X$. *Orientation:* $Y = b$, $X \wedge c = 23^\circ$, optic plane = (010).

Cell Data: *Space Group:* $P2_1/m$. $a = 8.938(1)$ $b = 5.6810(6)$ $c = 10.289(1)$
 $\beta = 114.17(1)^\circ$ $Z = 2$

X-ray Powder Pattern: Nežilovo village, Jacupica Mountains, Macedonia.
2.931 (100), 3.518 (77), 8.12 (68), 2.610 (66), 2.736 (57), 4.67 (53), 2.843 (51)

Chemistry:	(1)
CaO	11.86
PbO	26.34
Al ₂ O ₃	14.04
Mn ₂ O ₃	8.61
Fe ₂ O ₃	8.75
SiO ₂	28.90
H ₂ O	[1.47]
Total	99.97

(1) Nežilovo village, Jacupica Mountains, Macedonia; average of 32 electron microprobe analyses, H₂O calculated from stoichiometry and Mn³⁺ confirmed by K-edge XANES spectroscopy; corresponding to $\text{Ca}(\text{Pb}_{0.73}\text{Ca}_{0.30})(\text{Al}_{0.65}\text{Fe}^{3+}_{0.34})\text{Al}(\text{Mn}^{3+}_{0.67}\text{Fe}^{3+}_{0.33})(\text{Si}_{2.96}\text{Al}_{0.04})\text{O}_{12}(\text{OH})$.

Mineral Group: Epidote group.

Occurrence: From the Precambrian “Mixed Series” of metamorphic and igneous rocks in the central part of the Pelagonian massif.

Association: Barite, dolomite, calcite, hematite, cymrite, Zn- and Mn-bearing phlogopite, intermediate members of epidote-(Pb)–epidote–piemontite series, hedyphane, nežilovite, rinmanite, gahnite, tilasite, rutile, Zn-rich aegirine-augite, eckermannite-ferroglaucophane, senaite, roméite, As-fluorapatite, bindheimite, mimetite, chromite, braunite.

Distribution: From near Nežilovo village, 40 km SW of Veles, Babuna river valley, Jacupica Mountains, Macedonia.

Name: As a lead (*Pb*) dominant member of the epidote group.

Type Material: A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (# 4193/1).

References: (1) Chukanov, N.V., D.A. Varlamov, F. Nestola, D.I. Belakovskiy, J. Goettlicher, S.N. Britvin, A. Lanza, and S. Jančev (2012) Piemontite-(Pb), $\text{CaPbAl}_2\text{Mn}^{3+}[\text{Si}_2\text{O}_7][\text{SiO}_4]\text{O}(\text{OH})$, a new mineral species of the epidote supergroup. *Neues Jahrbuch für Mineralogie, Abhandlungen*, 189/3, 275-286. (2) (2014) *Amer. Mineral.*, 99, 2441-2442 (abs. ref. 1).