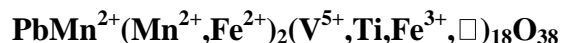


Paseroite

Crystal Data: Hexagonal. *Point Group:* $\bar{3}$. As elongated scalenohedral crystals to 100 μm , typically zoned with V-rich senaite.

Physical Properties: *Cleavage:* None. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = 6-6.5 VHN = 834-865, 847 average (500 g load). *D(meas.)* = n.d. *D(calc.)* = 4.315

Optical Properties: Opaque. *Color:* Dark gray to black; grayish in reflected light. *Streak:* Black. *Luster:* Submetallic.

Optical Class: Biaxial (-). [by analogy to senaite]

R_1 - R_2 : (471.1) 18.4-18.2, (548.3) 17.9-17.7, (586.6) 17.6-17.3, (652.3) 17.0-16.8

Cell Data: *Space Group:* $R\bar{3}$. $a = 10.3894(5)$ $c = 20.8709(8)$ $Z = 3$

X-ray Powder Pattern: Molinello mine, Val Graveglia, Liguria, Italy.

3.417 (100), 2.260 (85), 2.149 (65), 2.896 (61), 1.809 (57), 2.858 (36), 2.765 (27)

Chemistry:	(1)		(1)
Na ₂ O	0.35	La ₂ O ₃	0.02
MgO	0.05	Ce ₂ O ₃	0.03
MnO	7.70	TiO ₂	32.78
ZnO	1.15	ThO ₂	0.05
SrO	2.36	UO ₃	0.36
PbO	8.01	<u>V₂O₅</u>	<u>41.27</u>
FeO	2.80	Total	98.64
Fe ₂ O ₃	1.71		

(1) Molinello mine, Val Graveglia, Liguria, Italy; average of 11 electron microprobe analyses, Fe²⁺/Fe³⁺ calculated from structure analysis; corresponding to (Pb_{0.61}Sr_{0.39}) $\Sigma=1.00$ (V⁵⁺_{7.78}Ti⁴⁺_{7.03}Mn²⁺_{1.86}Fe²⁺_{0.67}Fe³⁺_{0.37}Zn_{0.24}Na_{0.19}U_{0.02}Mg_{0.02}□_{2.82}) $\Sigma=21.00$ O₃₈.

Mineral Group: Crichtonite group.

Polymorphism & Series: Forms a solid solution series with senaite.

Occurrence: In micro-cavities and fractures in a piece of fossilized wood, presumably precipitated from oxidized ground water.

Association: Quartz, chalcocite, volborthite; more rarely metatyuyamunite, pyrophanite.

Distribution: From the upper part of the Molinello mine, Val Graveglia, Ne, Genoa Province, Liguria, Italy.

Name: Honors Marco Pasero (b. 1958), Professor of Mineralogy, University of Pisa, Italy, for his contributions to mineralogy and crystallography in general, and especially Italian mineralogy.

Type Material: In Italy, at the Museum of Natural History, University of Florence (# 3111/I), and in the mineralogical collections of the Natural History Museum, University of Turin (# 15900).

References: (1) Mills, S.J., L. Bindi, M. Cadoni, A.R. Kampf, M.E. Ciriotti, and G. Ferraris (2012) Paseroite, PbMn²⁺(Mn²⁺, Fe²⁺)₂(V⁵⁺, Ti, Fe³⁺, □)₁₈O₃₈, a new member of the crichtonite group. *European Journal of Mineralogy*, 24(6), 1061-1067. (2) (2014) *Amer. Mineral.*, 99, 2156 (abs. ref. 1).