Palenzonaite $NaCa_2Mn_2^{2+}(VO_4)_3$

Crystal Data: Cubic. *Point Group:* $4/m\ \overline{3}\ 2/m$. In dodecahedral crystals, to 6 mm, and as anhedral grains.

Physical Properties: *Fracture:* Subconchoidal. Hardness = 5–5.5 D(meas.) = 3.63(2) D(calc.) = 3.78–3.79

Optical Properties: Transparent. *Color:* Wine-red; in thin section, wine-red. *Streak:* Brownish red. *Luster:* Adamantine. *Optical Class:* Isotropic. $n = 1.965(5)$

Cell Data: *Space Group:* $Ia3d$. $a = 12.534(2)$ Z = 8

X-ray Powder Pattern: Molinello mine, Italy.
2.803 (100), 2.558 (60), 3.132 (55), 1.675 (40), 1.738 (20), 2.673 (19), 5.12 (11)

Chemistry:

	(1)
As_2O_5	5.14
V_2O_5	39.34
SiO_2	3.32
MnO	25.19
CaO	23.70
Na_2O	3.40
Total	100.09

(1) Molinello mine, Italy; by electron microprobe, average of three analyses, total Mn as MnO; corresponds to $Na_{0.62}Ca_{2.37}Mn_{1.99}[(V_{0.81}Si_{0.10}As_{0.08})_{\Sigma=0.99}O_4]_3$.

Occurrence: A rare mineral in narrow veinlets cutting a manganese deposit hosted within radiolarian cherts (Molinello mine, Italy).

Association: Manganoan calcite, saneroite, ganophyllite, axinite (Molinello mine, Italy); medaite, saneroite, pyrobelonite, fianelite, parsettensite, rhodochrosite, kutnohorite, aegirine, quartz (Fianel mine, Switzerland).

Distribution: From the Molinello manganese mine, near Chiavari, Val Graveglia, Liguria, Italy. At the Fianel mine, Val Ferrera, Graubünden, Switzerland.

Name: In honor of Professor Andrea Palenzona, amateur mineralogist and discoverer of the mineral.

Type Material: University of Genoa, Genoa, Italy; Royal Ontario Museum, Toronto, Canada.

References: (1) Basso, R. (1987) The crystal structure of palenzonaite, a new vanadate garnet from Val Graveglia (Northern Apennines, Italy). Neues Jahrb. Mineral., Monatsh., 136–144.
(2) (1988) Amer. Mineral., 73, 930 (abs. ref. 1).