Strontiopiemontite $CaSr(Al,Mn^{3+},Fe^{3+})_3(SiO_4)(Si_2O_7)O(OH)$

Crystal Data: Monoclinic. *Point Group:* $2/m$. Prismatic, elongated along [010], to 1 mm; in radial aggregates. *Twinning:* On {001}.

Physical Properties: *Cleavage:* Perfect on {001}. Hardness = 6 D(meas.) = 3.65–3.73 D(calc.) = 3.73

Optical Properties: Transparent. *Color:* Deep red. *Streak:* Purple-brown.
Luster: Vitreous.
Optical Class: Biaxial (+). *Pleochroism:* Strong; X = yellow-orange; Y = violet; Z = reddish violet. *Orientation:* $Y = b$. $n = 1.763$ 2V(meas.) = n.d.

Cell Data: *Space Group:* $P2_1/m$. $a = 8.862(2)$ $b = 5.682(1)$ $c = 10.191(4)$ $\beta = 114.70(1)^\circ$ Z = [2]

X-ray Powder Pattern: Val Graveglia, Italy.
2.916 (100), 3.493 (50), 2.836 (50), 2.601 (50), 1.590 (50), 2.678 (40), 2.117 (40)

Chemistry:

	(1)
SiO_2	34.27
TiO_2	< 0.10
Al_2O_3	17.56
Fe_2O_3	4.89
Mn_2O_3	12.93
MnO	2.87
MgO	< 0.10
CaO	11.69
SrO	13.45
H_2O	[1.72]
Total	[99.38]

(1) Val Graveglia, Italy; by electron microprobe, Mn^{2+}:Mn^{3+} calculated from stoichiometry, H_2O calculated to give one H per formula unit; corresponds to $(Ca_{0.79}Mn^{2+}_{0.21})_{\Sigma=1.00}(Sr_{0.68}Ca_{0.31})_{\Sigma=0.99}(Al_{1.81}Mn^{3+}_{0.86}Fe^{3+}_{0.32})_{\Sigma=2.99}Si_{3.00}O_{12}(OH)$.

Mineral Group: Epidote group.

Occurrence: As veinlets in a low-temperature metamorphosed manganese ore deposit (Val Graveglia, Italy).

Association: Calcite, rhodonite, rhodochrosite, ganophyllite, braunite, quartz (Val Graveglia, Italy); xonotolite, vuagnatite (Wessels mine, South Africa).

Distribution: From the Molinello and Cassagna manganese mines, near Chiavari, Val Graveglia, Liguria, Italy. In the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: From its *strontium* content and similarity to *piemontite*.

Type Material: University of Florence, Florence, Italy, 1266/l.

References: (1) Bonazzi, P., S. Menchetti, and A. Palenzona (1990) Strontiopiemontite, a new member of the epidote group, from Val Graveglia, Liguria, Italy. Eur. J. Mineral., 2, 519–523. (2) (1991) Amer. Mineral., 76, 668 (abs. ref. 1).