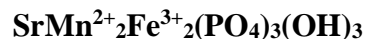


Strontioperloffite

Crystal Data: Monoclinic. *Point Group:* 2/m. As crystals to 0.4 mm, tabular to bladed on {001}; as hemispherical aggregates of crystals to 0.5 mm.

Physical Properties: *Cleavage:* Excellent on {100}. *Tenacity:* Brittle. *Fracture:* Uneven. Hardness = 4.5 D(meas.) = n.d. D(calc.) = 3.89

Optical Properties: Translucent. *Color:* Brownish orange. *Streak:* Pale orange. *Luster:* Vitreous. *Optical Class:* Biaxial (-). $\alpha = 1.805(4)$ $\beta = 1.820(4)$ $\gamma = 1.829(4)$ $2V(\text{calc.}) = 75^\circ$ Nonpleochroic.

Cell Data: *Space Group:* $P2_1/m$. $a = 9.1830(18)$ $b = 12.349(3)$ $c = 5.0081(10)$ $\beta = 100.23(3)^\circ$ $Z = 2$

X-Ray Diffraction Pattern: Spring Creek mine, near Wilmington, South Australia, Australia. 3.158 (100), 3.106 (53), 1.921 (53), 9.055 (32), 5.122 (23), 2.938 (22), 2.985 (20)

Chemistry:	(1)
P ₂ O ₅	31.90
As ₂ O ₅	0.10
Fe ₂ O ₃	[23.62]
FeO	[1.55]
Al ₂ O ₃	0.17
MnO	19.41
CaO	0.38
SrO	8.90
BaO	8.65
Na ₂ O	0.05
<u>H₂O</u>	<u>[4.08]</u>
Total	98.81

(1) Spring Creek mine, near Wilmington, South Australia, Australia; average electron microprobe analysis supplemented by IR spectroscopy, Fe³⁺/Fe²⁺ proportioned on Fe³⁺+Al = 2.00 apfu, H₂O calculated from structure analysis; corresponds to (Sr_{0.57}Ba_{0.38}Na_{0.01}) $\Sigma=0.96$ (Mn²⁺_{1.83}Fe²⁺_{0.14}Ca_{0.05}) $\Sigma=2.02$ (Fe³⁺_{1.98}Al_{0.02}) $\Sigma=2.00$ (P_{3.00}As_{0.01}) $\Sigma=3.01$ O_{11.98}(OH)_{3.02}.

Mineral Group: Bjarebyite group.

Occurrence: A secondary mineral in cavities in quartz veins from low-temperature hydrothermal solutions.

Association: Copper, cuprite, mitridatite, rhodochrosite, quartz, goethite.

Distribution: From the dumps of the Spring Creek copper mine, ~10 km south of Wilmington, South Australia, Australia.

Name: The strontian analog of *perloffite*.

Type Material: South Australian Museum, Adelaide, South Australia (G34219).

References: (1) Elliott, P. (2019) Strontioperloffite, SrMn²⁺₂Fe³⁺₂(PO₄)₃(OH)₃, a new bjarebyite-group mineral from the Spring Creek mine, South Australia, Eur. J. Mineral., 31(3), 549-555. (2) (2021) Amer. Mineral., 106, 1543 (abs. ref. 1).