

Crystal Data: Tetragonal. *Point Group:* 4/m or 4/m 2/m 2/m. As irregular clusters of divergent crystals to 250 μm, tabular on {001}.

Physical Properties: *Cleavage:* Distinct on {001}. *Tenacity:* n.d. *Fracture:* Splintery. Hardness = 3 D(meas.) = n.d. D(calc.) = 3.40

Optical Properties: Transparent. *Color:* Pale green with a slight bluish tinge. *Streak:* Very pale green. *Luster:* Vitreous.

Optical Class: Uniaxial (-). $\omega = 1.721(2)$ $\varepsilon = 1.715(2)$ *Pleochroism:* Weak, *E* = colorless, *O* = pale green. *Absorption:* $O > E$.

Cell Data: *Space Group:* P4/n or P4/nmm. $a = 9.031(6)$ $c = 12.755(8)$ $Z = 4$

X-ray Powder Pattern: Spring Creek mine, southern Flinders Ranges, South Australia. 3.100 (100), 2.017 (100), 2.786 (80), 5.748 (70), 2.847 (40), 4.552 (30), 2.368 (30)

Chemistry:	(1)	(2)
BaO	23.20	28.76
SrO	4.19	
CaO	0.36	
VO ₂	31.55	31.11
Fe ₂ O ₃	0.20	
Al ₂ O ₃	0.50	
P ₂ O ₅	28.15	26.62
H ₂ O	[13.93]	13.51
Total	102.08	100.00

(1) Spring Creek mine, South Australia; average electron microprobe analysis, H₂O calculated; corresponds to (Ba_{0.77}Sr_{0.20}Ca_{0.03})_{Σ=1.00}[(V⁴⁺_{0.96}Al_{0.03}Fe³⁺_{0.01})_{Σ=1.00}O₂(PO₄)₂·4H₂O.

(2) Ba(VO)₂(PO₄)₂·4H₂O.

Occurrence: Of low-temperature late-stage hydrothermal or supergene origin in a small vein.

Association: Quartz, copper, cuprite, goethite, whitlockite, mitridatite, fluorapatite, baryte, springcreekite.

Distribution: From the Spring Creek mine, near Wilmington, southern Flinders Ranges, South Australia.

Name: The prefix, *barrio*, indicates the barium analog of *sincosite*.

Type Material: South Australian Museum, Adelaide.

References: (1) Pring, A., U. Kolitsch, W.D. Birch, B.D. Beyer, P. Elliott, P. Ayyappan, and A. Ramanan (1999) Bariosincosite, a new hydrated barium vanadium phosphate, from the Spring Creek Mine, South Australia. *Mineral. Mag.*, 63, 735-741. (2) (2000) *Amer. Mineral.*, 85(5-6), 873 (abs. ref. 1).