

Springcreekite**Crystal Data:** Hexagonal. *Point Group:* $\bar{3}m$. As rhombohedra to 0.1 mm.**Physical Properties:** *Cleavage:* Poor on {10 $\bar{1}$ 2}, or a parting. *Tenacity:* Brittle.*Fracture:* Irregular. *Hardness* = 4-5 *D(meas.)* = 3.48(3) *D(calc.)* = 3.58 Nonfluorescent.**Optical Properties:** Transparent. *Color:* Pitch-black. *Streak:* Brownish black.*Luster:* Semi-metallic.*Optical Class:* Uniaxial (-). $\omega = 1.858(5)$ $\epsilon = 1.817(4)$ *Pleochroism:* Strong, *E* = pale brownish to brownish, *O* = blackish brown to black.**Cell Data:** *Space Group:* $R\bar{3}m$. $a = 7.258(1)$ $c = 17.361(9)$ $Z = 3$ **X-ray Powder Pattern:** Spring Creek mine, southern Flinders Ranges, South Australia.

3.073 (100), 5.90 (90), 1.971 (50), 3.627 (40), 2.301 (40), 1.814 (40)

Chemistry:	(1)
BaO	23.43
SrO	0.27
CaO	0.15
Na ₂ O	0.08
V ₂ O ₃	19.44
Fe ₂ O ₃	15.02
Al ₂ O ₃	0.32
CuO	0.17
ZnO	0.14
P ₂ O ₅	23.26
SiO ₂	0.20
H ₂ O	[12.16]
F	0.21
- O = F	<u>0.09</u>
Total	94.67

(1) Spring Creek mine, southern Flinders Ranges, South Australia; electron microprobe analysis, H₂O calculated; corresponds to (Ba_{0.92}Ca_{0.02}Sr_{0.02}Na_{0.02}) $\Sigma=0.98$ (V³⁺_{1.57}Fe³⁺_{1.14}Al_{0.05}Cu_{0.01}Zn_{0.01}) $\Sigma=2.78$ [(P_{0.99}Si_{0.02})O₄]₂[(OH)_{4.17}F_{0.07}(H₂O)_{1.76}] $\Sigma=6.00$.

Mineral Group: Alunite supergroup, plumbogummite group.**Occurrence:** In a small vein deposit formerly mined for Cu.**Association:** Quartz, copper, cuprite, goethite, whitlockite, mitridatite, barrosincosite, fluorapatite.**Distribution:** Spring Creek mine, near Wilmington, southern Flinders Ranges, South Australia [TL].**Name:** For the mine that produced the studied specimens.**Type Material:** South Australian Museum, Adelaide, Australia.

References: (1) Kolitsch, U., M.R. Taylor, G.D. Fallon, and A. Pring (1999) Springcreekite, BaV³⁺₃(PO₄)₂(OH,H₂O)₆, a new member of the crandallite group, from the Spring Creek mine, South Australia: the first natural V³⁺-member of the alunite family and its crystal structure. *Neues Jahrb. Mineral. Mon.*, 529-544. (2) (2000) *Amer. Mineral.*, 85, 1324 (abs. ref. 1). (3) Bayliss, P., U. Kolitsch, E.H. Nickel, and A. Pring (2010) Alunite supergroup: recommended nomenclature. *Mineral. Mag.*, 74(5), 919-927.