

Arsenocrandallite**(Ca, Sr)Al₃[(As, P)O₄]₂(OH)₅•H₂O**

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Crystal Data: Hexagonal. *Point Group:* $\bar{3} 2/m$ or $3m$. As spherulitic aggregates, to 0.1 mm, in reniform crusts.

Physical Properties: *Fracture:* Conchoidal. Hardness = ~ 5.5 D(meas.) = 3.25(1) D(calc.) = 3.30

Optical Properties: Semitransparent. *Color:* Blue-green to green. *Streak:* White. *Luster:* Vitreous.

Optical Class: Isotropic or nearly so; very low birefringence. $n = 1.625(1)$

Cell Data: *Space Group:* $R\bar{3}m$ or $R3m$. $a = 7.06\text{--}7.08$ $c = 17.22\text{--}17.27$ $Z = 3$

X-ray Powder Pattern: Neubulach, Germany.

2.99 (10), 3.55 (9), 5.84 (8), 1.769 (6), 1.919 (5), 2.23 (4), 5.02 (3)

Chemistry:

	(1)
P ₂ O ₅	10.7
As ₂ O ₅	22.9
SiO ₂	3.2
Al ₂ O ₃	28.7
Fe ₂ O ₃	1.2
Bi ₂ O ₃	2.4
CuO	1.8
ZnO	0.3
CaO	6.9
SrO	6.0
BaO	4.3
H ₂ O	11.7
Total	100.1

(1) Neubulach, Germany; by electron microprobe, total Fe as Fe₂O₃, H₂O taken as loss on ignition; corresponds to (Ca_{0.61}Sr_{0.29}Ba_{0.14}Bi_{0.05})_{Σ=1.09}(Al_{2.79}Cu_{0.11}Fe_{0.07}³⁺Zn_{0.02})_{Σ=2.99}[(AsO₄)_{0.99}(PO₄)_{0.75}(SiO₄)_{0.26}]_{Σ=2.00}(OH)_{4.63}•H₂O.

Mineral Group: Crandallite group.

Occurrence: A secondary mineral on specimens from a mine dump (Neubulach, Germany).

Association: Brochantite, chalcophyllite, parnauite, barian pharmacosiderite, bulachite, arsenosiderite, mansfieldite, tetrahedrite–tennantite, azurite, malachite, barite, goethite, quartz (Neubulach, Germany); arsenogoyazite, beudantite, olivenite (Centennial Eureka mine, Utah, USA).

Distribution: From Neubulach, and in the Clara mine, near Oberwolfach, Black Forest, Germany. At the Centennial Eureka mine, Tintic district, Juab Co., Utah, USA.

Name: For *arsenic* in the composition, and relation to *crandallite*.

Type Material: National Museum of Natural History, Washington, D.C., USA, 150251.

References: (1) Walenta, K. (1981) Mineralien der Beudantit-Crandallitgruppe aus dem Schwarzwald: Arsenocrandallit und sulfatfreier Weilerit. Schweiz. Mineral. Petrog. Mitt., 61, 23–35 (in German with English abs.). (2) (1982) Amer. Mineral., 67, 854 (abs. ref. 1).