

Arsenogorceixite**BaAl₃(AsO₄)(AsO₃OH)(OH)₆**

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Crystal Data: Hexagonal. *Point Group:* $\bar{3}2/m$. As rhombohedral crystals, flattened to pseudo-octahedral, showing {10 $\bar{1}$ 1} and {0001}, to 0.2 mm; in spherulitic aggregates of radiating crystals.

Physical Properties: *Fracture:* Conchoidal. Hardness = ~ 4 D(meas.) = 3.65(5)
D(calc.) = 3.71

Optical Properties: Transparent. *Color:* Colorless, white, yellow, pale yellow, pale blue.
Luster: Vitreous.

Optical Class: Uniaxial, nearly isotropic. $n = 1.645(2)$ $\omega = \text{n.d.}$ $\epsilon = \text{n.d.}$

Cell Data: *Space Group:* $[R\bar{3}m]$ (by analogy to the crandallite group). $a = 7.10(3)$
 $c = 17.39(4)$ $Z = 3$

X-ray Powder Pattern: Clara mine, Germany.

3.02 (10), 5.84 (8), 3.55 (8), 2.30 (6), 1.930 (6), 1.774 (5), 1.515 (5)

Chemistry:

	(1)	(2)
P ₂ O ₅	5.9	
As ₂ O ₅	27.2	38.36
Al ₂ O ₃	27.8	25.53
FeO	0.7	
CaO	0.2	
SrO	0.9	
BaO	24.9	25.59
F	2.5	
H ₂ O	[10.9]	10.52
−O = F ₂	1.0	
Total	[100.0]	100.00

(1) Clara mine, Germany; by electron microprobe, total Fe as FeO, H₂O by difference; corresponding to (Ba_{0.92}Sr_{0.05}Fe_{0.05}Ca_{0.02}) $_{\Sigma=1.04}$ Al_{3.09}[(AsO₄)_{1.34}(PO₄)_{0.47}] $_{\Sigma=1.81}$ [(OH)_{5.19}F_{0.73}] $_{\Sigma=5.92}$ •0.83H₂O. (2) HBaAl₃(AsO₄)₂(OH)₆.

Mineral Group: Crandallite group.

Occurrence: A rare secondary mineral in the oxidized zone of a hydrothermal polymetallic barite–fluorite deposit (Clara mine, Germany).

Association: Arsenogoyazite, brochantite, agardite, malachite, barian pharmacosiderite, olivenite, fluorite, barite, “limonite”, quartz (Clara mine, Germany); mimetite, adamite, beudantite, tsumcorite (Michael mine, Germany).

Distribution: Found in the Clara mine, near Oberwolfach, and the Michael mine, Weiler, near Lahr, Black Forest, Germany. From the Bali Lo copper prospect, 11 km west-southwest of Ashburton Downs homestead, Capricorn Range, Western Australia.

Name: For its *arsenic* content and relation to *gorceixite*.

Type Material: n.d.

References: (1) Walenta, K. and P.J. Dunn (1993) Arsenogorceixit von der Grube Clara im mittleren Schwarzwald. Aufschluss, 44, 250–254 (in German with English abs.). (2) (1996) Amer. Mineral., 81, 249 (abs. ref. 1).