

Crystal Data: Hexagonal. *Point Group:* 6/m 2/m 2/m. As platy hexagonal crystals to 0.5 mm; as aggregates to 3 mm.

Physical Properties: *Cleavage:* Perfect on {0001}. *Fracture:* Irregular. *Tenacity:* Brittle.
Hardness = 2-2.5 D(meas.) = > 3.8 D(calc.) = 4.21 Soluble in dilute HCl.

Optical Properties: Transparent to translucent. *Color:* Blue. *Streak:* Sky-blue. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.840(4)$ - $1.845(4)$ $\epsilon = 1.833(4)$ - $1.840(4)$

Cell Data: *Space Group:* P6₃/mmc. $a = 6.6786(2)$ $c = 9.2744(3)$ $Z = 2$

X-ray Powder Pattern: Great Australia mine, northwest Queensland, Australia.
5.790 (100), 2.707 (55), 2.889 (40), 2.452 (40), 1.668 (30), 1.778 (20), 3.338 (15)

Chemistry:	(1)
CuO	70.08
F	4.64
Cl	0.73
Br	16.79
H ₂ O	[11.59]
-O = F ₂	1.95
-O = Cl ₂	0.16
-O = Br ₂	1.68
Total	100.04

(1) Great Australia mine, northwest Queensland, Australia; average of 20 electron microprobe analyses supplemented by IR spectroscopy, H₂O calculated for charge balance; corresponding to Cu_{4.00}F_{1.11}Br_{0.95}Cl_{0.09}(OH)_{5.85}.

Occurrence: A secondary mineral in the weathering zone of a copper deposit.

Association: Gerhardtite, brochantite, cuprite, quartz, goethite.

Distribution: From the Great Australia mine, 2 km south of Cloncurry, northwest Queensland, Australia.

Name: Honors William Barlow (1845-1934), the English amateur geologist and crystallographer who independently enumerated the 230 space groups and proposed several crystal structures in the 1880s that were later validated by X-ray crystallography.

Type Material: South Australian Museum, Adelaide, Australia (G17449).

References: (1) Elliott, P., M.A. Cooper and A. Pring (2015) Barlowite, Cu₄FBr(OH)₆, a new mineral isostructural with claringbullite: description and crystal structure. *Mineral. Mag.*, 78(7), 1755-1762. (2) (2016) *Amer. Mineral.*, 101, 1012-1013 (abs. ref. 1).