

**Crystal Data:** Monoclinic. *Point Group:* 2/m. Crystals, fibrous to bladed, to 0.2 mm; as globules and tufted aggregates, to 1 mm.

**Physical Properties:** *Cleavage:* Perfect on {001}. *Fracture:* Uneven.  
*Tenacity:* Brittle. Hardness = 3-3.5 D(meas.) = n.d. D(calc.) = 4.42 (ideal formula)

**Optical Properties:** Transparent to translucent. *Color:* Colorless crystals, white in aggregates.  
*Streak:* White. *Luster:* Vitreous.  
*Optical Class:* n.d.  $\beta \sim 1.70$

**Cell Data:** *Space Group:* C2/c.  $a = 18.062(4)$   $b = 9.341(2)$   $c = 9.844(2)$   $\beta = 96.17(3)^\circ$   
 $Z = 4$

**X-ray Powder Pattern:** Broken Hill, New South Wales, Australia.  
3.234 (100), 8.283 (85), 3.079 (65), 2.976 (45), 8.985 (30), 6.169 (25), 4.878 (25)

Chemistry:	(1)	(2)
P <sub>2</sub> O <sub>5</sub>	6.29	
As <sub>2</sub> O <sub>5</sub>	34.55	41.88
Al <sub>2</sub> O <sub>3</sub>	0.20	
MnO	3.59	
CaO	0.16	
ZnO	9.72	14.83
CuO	3.39	
CdO	34.58	35.09
PbO	0.37	
<u>H<sub>2</sub>O<sub>calc.</sub></u>	<u>8.21</u>	<u>8.21</u>
Total	101.06	100.00

(1) Broken Hill, New South Wales, Australia, average of 14 electron microprobe analyses; corresponding to  $\text{Cd}_{2.80}\text{Zn}_{1.24}\text{Mn}_{0.53}\text{Cu}_{0.44}\text{Al}_{0.04}\text{Ca}_{0.03}\text{Pb}_{0.02}[(\text{AsO}_4)_{3.13}(\text{PO}_4)_{0.92}]_{\Sigma=4.05}\text{H}_{1.91} \cdot 3.79\text{H}_2\text{O}$ .  
(2)  $\text{Cd}_3\text{Zn}_2(\text{AsO}_3\text{OH})_2(\text{AsO}_4)_2 \cdot 4\text{H}_2\text{O}$ .

**Occurrence:** A late-stage secondary mineral in the weathering zone of a Cd-Zn arsenate deposit.

**Association:** Goldquarryite, lavendulan-sampleite, scorodite-strengite, gypsum.

**Distribution:** Block 14 Opencut, Broken Hill, New South Wales, Australia.

**Name:** Honors Sir Ronald Sydney Nyholm (1917–1971), born at Broken Hill, New South Wales, and Chair and Professor of Chemistry, University College, London, from 1955–1971.

**Type Material:** South Australian Museum, Adelaide, South Australia (catalog no. G32511).

**References:** (1) Elliott, P., P. Turner, P. Jensen, U. Kolitsch, and A. Pring (2009) Description and crystal structure of nyholmite, a new mineral related to hureaulite, from Broken Hill, New South Wales, Australia. *Mineral. Mag.*, 73, 723–735. (2) (2010) *Amer. Mineral.*, 95, 1360 (abs. ref. 1).