

Aheylite



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Crystal Data: Triclinic. *Point Group:* 1 or $\bar{1}$. As crystals, interlocked in felted and matted aggregates to form botryoidal, spherulitic masses; radiating, prismatic groups, to 5 mm.

Physical Properties: *Fracture:* Hackly to splintery. *Tenacity:* May be brittle. Hardness = 5–5.5 D(meas.) = 2.84 D(calc.) = 2.90

Optical Properties: Transparent in thin flakes. *Color:* Very pale blue, pale green, to blue-green. *Streak:* White. *Luster:* Porcelaneous to subvitreous. *Optical Class:* Biaxial (+). $n = \sim 1.63$ 2V(meas.) = n.d.

Cell Data: *Space Group:* $P1$ or $P\bar{1}$. $a = 7.400(1)$ $b = 9.896(1)$ $c = 7.627(1)$
 $\alpha = 110.87^\circ$ $\beta = 115.00^\circ$ $\gamma = 69.96^\circ$ $Z = 1$

X-ray Powder Pattern: Huanuni mine, Bolivia.

3.670 (100), 2.888 (67), 6.146 (43), 3.27 (37), 3.436 (36), 2.914 (34), 3.398 (25)

Chemistry:

	(1)	(2)
P ₂ O ₅	35.4	35.23
Al ₂ O ₃	38.1	37.96
FeO	4.14	8.92
ZnO	4.02	
H ₂ O ⁺	18.5	17.89
H ₂ O ⁻	0.08	0.00
Total	100.24	100.00

(1) Huanuni mine, Bolivia; by ICP, H₂O⁻ by gravimetry, H₂O⁺ by Karl Fischer titration, average of four analyses; corresponds to $(\text{Fe}_{0.46}^{2+}\text{Zn}_{0.40})_{\Sigma=0.86}\text{Al}_6(\text{PO}_4)_{3.72}(\text{PO}_3\text{OH})_{0.28}(\text{OH})_8 \cdot 4.10\text{H}_2\text{O}$.

(2) $\text{FeAl}_6(\text{PO}_4)_4(\text{OH})_8 \cdot 4\text{H}_2\text{O}$.

Mineral Group: Turquoise group.

Occurrence: A late stage hydrothermal mineral in a base-metal-tin deposit (Huanuni mine, Bolivia).

Association: Variscite, sphalerite, vivianite, wavellite, cassiterite, pyrite, quartz (Huanuni mine, Bolivia).

Distribution: In the Huanuni mine, Oruro, Bolivia. From the Bali Lo copper prospect, 11 km west-southwest of Ashburton Downs homestead, Capricorn Range, Western Australia.

Name: To honor Allen V. Heyl (1918–), economic geologist, U.S. Geological Survey.

Type Material: n.d.

References: (1) Foord, E.E. and J.E. Taggart, Jr. (1998) A reexamination of the turquoise group: the mineral aheylite, planerite (redefined), turquoise and coeruleolactite. *Mineral. Mag.*, 62, 93–111.