

Waylandite



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Crystal Data: Hexagonal. *Point Group:* $\bar{3}2/m$. As crystals, to 0.5 mm; as a compact fine-grained powder forming crusts and veinlets. *Twinning:* Most crystals show twinning, typically cyclic.

Physical Properties: *Fracture:* Uneven (massive). Hardness = 4–5 D(meas.) = n.d. D(calc.) = 4.08

Optical Properties: Translucent. *Color:* Colorless, white, pale blue, pale brown.

Luster: Vitreous to dull.

Optical Class: Uniaxial (+). $\omega = 1.748$ $\epsilon = 1.774$

Cell Data: *Space Group:* $R\bar{3}m$. $a = 6.9744$ – 6.9834 $c = 16.175$ – 16.293 $Z = 3$

X-ray Powder Pattern: Wampewo pegmatite, Uganda.

2.938 (100), 2.173 (100), 1.888 (85), 5.67 (80), 2.200 (80), 1.743 (80), 3.492 (75)

Chemistry:

	(1)	(2)	(3)
P ₂ O ₅	22.15	23.96	24.39
SiO ₂	4.68	0.15	
Al ₂ O ₃	29.27	26.52	26.28
Bi ₂ O ₃	28.28	34.84	40.04
FeO		0.81	
CuO		0.81	
CaO	2.93	0.75	
BaO		1.01	
H ₂ O ⁺	12.34		
H ₂ O ⁻	0.55		
H ₂ O		[11.15]	9.29
Total	100.20	[100.00]	100.00

(1) Wampewo pegmatite, Uganda. (2) Restormel mine, Cornwall, England; by electron microprobe, H₂O by difference. (3) BiAl₃(PO₄)₂(OH)₆.

Mineral Group: Crandallite group.

Occurrence: A rare secondary mineral replacing primary bismuth minerals.

Association: Bismutite (Restormel mine, Cornwall, England); bismutotantalite (Ngusa, Congo).

Distribution: From the Wampewo pegmatite, Gamba Hill, near Kampala, southwest Uganda. At Ngusa, and in the Kobokobo pegmatite, Lusungu River district, Kivu Province, Congo (Zaire). From the Restormel mine, near Lostwithiel; at Wheal Owles and the Levant mine, St. Just; Phoenix mines, near Linkinhorne; and in the Gunheath china clay pit, St. Austell, Cornwall, England. From a dump on the Roter Berg, Schneeberg, Saxony, Germany. At the Rubicon pegmatite, south of Karibib, Namibia. From an undefined deposit in China.

Name: Honors Edgar James Wayland, first Director of the Uganda Geological Survey.

Type Material: n.d.

References: (1) Von Knorring, O. and M.E. Mrose (1963) Westgrenite [= bismutomicrolite] and waylandite, two new bismuth minerals from Uganda. *Geol. Soc. Amer. Spec. Paper* 73, 256A (abs.). (2) (1963) *Amer. Mineral.*, 48, 216. (abs. ref. 1). (3) Clark, A.M., A.G. Couper, P.G. Embrey, and E.E. Fejer (1986) Waylandite: new data, from an occurrence in Cornwall, with a note on 'agnesite'. *Mineral. Mag.*, 50, 731–733. (4) Bayliss, P. (1986) X-ray powder data for nissonite and waylandite. *Powder Diffraction*, 1, 331–333.

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