

Crystal Data: Monoclinic. *Point Group:* *m*. Crystals are flattened {010}, with large {010} striated || [001], {130}, {140}, {111}, {121}, {001}, {011}, many other forms, rarely to 17.5 cm. *Twining:* Rare “fishtail” twins according to an unknown law.

Physical Properties: *Cleavage:* On {010}, good. *Tenacity:* Brittle. Hardness = 2.5
D(meas.) = 5.943–6.07 D(calc.) = 6.079 May fluoresce dull yellow under LW UV.

Optical Properties: Transparent. *Color:* Colorless to white; in transmitted light, colorless. *Streak:* White. *Luster:* Vitreous to nearly adamantine.

Optical Class: Biaxial (+). *Orientation:* $X = b$; $Y \wedge c = -24^\circ$; $Z \wedge c = 66^\circ$. *Dispersion:* Strong. $\alpha = [1.890]$ $\beta = 1.910$ $\gamma = 1.976$ $2V(\text{meas.}) = 58^\circ 14'$

Cell Data: *Space Group:* *Pa*. $a = 5.946(6)$ $b = 6.783(6)$ $c = 4.873(5)$ $\beta = 95.53(6)^\circ$
 $Z = 2$

X-ray Powder Pattern: Tsumeb, Namibia.

3.35 (vvs), 3.13 (vs), 1.950 (vsb), 1.778 (sb), 2.19 (ms), 1.683 (ms), 1.546 (ms)

Chemistry:	(1)	(2)
As ₂ O ₅	32.18	33.11
PbO	63.97	64.30
H ₂ O	2.88	2.59
Total	99.03	100.00

(1) Tsumeb, Namibia. (2) Pb(AsO₃OH).

Occurrence: A rare secondary mineral in the oxidized zone of Pb–As-rich hydrothermal deposits.

Association: Anglesite, bayldonite, cuprian adamite, keyite, olivenite, duftite, carminite, beudantite, scorodite, stranskiite, pharmacosiderite, mimetite, cerussite, tennantite, galena, arsenopyrite.

Distribution: From Tsumeb, Namibia. On a ridge between Granite Lake and Gifford Lake, 13 km east of North Bend, King Co., Washington, USA. In the Deer Hills vein, Caldbeck Fells, Cumbria, England. In Germany, from the Michael mine, Weiler, near Lahr, and on the Geiges mine dump, near Schramberg, Black Forest; at St. Andreasberg, Harz Mountains; from Ramsbeck, North Rhein-Westphalia. At Grabanz, near Finkenstein, Austria.

Name: Honoring Professor August Benjamin Friherre af Schultén (1856–1912), chemist, University of Helsinki, Helsinki, Finland, who studied synthetic arsenates.

Type Material: The Natural History Museum, London, England, 1926,205; National School of Mines, Paris, France; National Museum of Natural History, Washington, D.C., USA, 106356.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana’s system of mineralogy, (7th edition), v. II, 661–663. (2) Claringbull, G.F. (1950) An X-ray study of schultenite. *Mineral. Mag.*, 29, 287–290. (3) Falls, R., B. Cannon, and J.A. Mandarino (1985) Schultenite from King County, Washington, USA: a second occurrence, and review. *Mineral. Mag.*, 49, 65–69. (4) Wilson, C.C. (1994) Structural studies of schultenite in the temperature range 125–324 K by pulsed single crystal neutron diffraction – hydrogen ordering and structural distortions. *Mineral. Mag.*, 58, 629–634.