

Crystal Data: Monoclinic. *Point Group:* 2/m. As thick tabular crystals, {001}, to 13 cm, may be prismatic, even acicular || [001], showing many forms, dominantly {110}, {001}, { $\bar{2}01$ }, { $\bar{1}11$ }, with {110} striated || [001]; may be massive.

Physical Properties: *Cleavage:* {110}, perfect; { $\bar{2}01$ }, good; {001} and { $\bar{1}01$ }, imperfect. *Fracture:* Uneven. *Tenacity:* Brittle. Hardness = 4.5–5 D(meas.) = 2.696 D(calc.) = 2.704

Optical Properties: Transparent. *Color:* Colorless to white, may be yellowish to pale rose, greenish; colorless in transmitted light. *Streak:* White. *Luster:* Vitreous, pearly on perfect {110} cleavage.

Optical Class: Biaxial (+). *Orientation:* X = b; Y \wedge c = -56°; Z \wedge c = 34°. α = 1.5736 β = 1.5759 γ = 1.5877 2V(meas.) = 50°49' 2V(calc.) = 47°56'

Cell Data: *Space Group:* C2/m. a = 13.124(6) b = 7.988(5) c = 5.066(3) β = 112.25(2)° Z = 4

X-ray Powder Pattern: Big Fish River area, Canada. (ICDD 34-151). 3.344 (100), 3.517 (55), 4.007 (30), 4.706 (25), 4.673 (25), 3.490 (25), 1.869 (18)

Chemistry:	(1)	(2)	(3)
P ₂ O ₅	35.04	34.68	35.50
SiO ₂		0.07	
TiO ₂		0.08	
Al ₂ O ₃	49.15	50.33	50.99
Fe ₂ O ₃	0.89		
MnO	0.31		
CaO	1.09		
H ₂ O	12.85		13.51
Total	99.33		100.00

(1) Västana mine, Sweden; after deduction of quartz impurity. (2) Mt. Perry, Australia; by electron microprobe, partial analysis; corresponding to Al_{2.01}(PO₄)_{0.99}(OH)₃. (3) Al₂(PO₄)(OH)₃.

Occurrence: Formed by hydrogen metamorphism of phosphate-bearing rocks in peraluminous sediments; in some high-temperature hydrothermal ore deposits.

Association: Attakolite, svanbergite, lazulite, hematite, trolleite, berlinite (Västana mine, Sweden); lazulite, rutile, pyrophyllite, barite (Champion mine, California, USA); arsenopyrite, stannite, pyrite, andorite, cassiterite, zinkenite (Bolivia).

Distribution: From the Västana mine, near Näsrum, Skåne, and at Hålsjöberg, Värmland, Sweden. At Mbale, Uganda. In the Buranga pegmatite, near Gatumba, Rwanda. In the USA, large crystals from the Champion mine, White Mountains, Mono Co., California; in New Hampshire, at the Palermo #1 mine, near North Groton, Grafton Co., and the G.E. Smith mine, Newport, Sullivan Co.; in the Hugo and Ingersoll mines, near Keystone, Pennington Co., South Dakota; in the White Picacho district, Maricopa and Yavapai Cos., Arizona. From the Big Fish River–Rapid Creek area, Yukon Territory, Canada. In Bolivia, from the Socavón mine, San José, and Itos mines, Oruro; at Llallagua, Machacamarca, Tatasi, and Portugalete, Potosí. From Mt. Perry, 75 km southwest of Bundaberg, Queensland, Australia. Additional localities are known.

Name: From the Greek for *luster*, for its pearly luster on the cleavage.

Type Material: n.d.

References: (1) Palache, C., H. Berman, and C. Frondel (1951) Dana's system of mineralogy, (7th edition), v. II, 871–872. (2) Araki, T., J.J. Finney, and T. Zoltai (1968) The crystal structure of augelite. *Amer. Mineral.*, 53, 1096–1103. (3) Duggan, M.B., M.T. Jones, D.N.G. Richards, and J.L. Kamprad (1990) Phosphate minerals in altered andesite from Mount Perry, Queensland, Australia. *Can. Mineral.*, 28, 125–131.

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