

Paradamite

Zn₂(AsO₄)(OH)

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Crystal Data: Triclinic. *Point Group:* $\bar{1}$. Rarely as equant crystals, striated and rounded; in sheaflike aggregates, to 1 cm.

Physical Properties: *Cleavage:* On {010}, perfect. *Hardness* = n.d. *D*(meas.) = 4.55(2)
D(calc.) = 4.595

Optical Properties: Transparent. *Color:* Pale yellow. *Streak:* White. *Luster:* Vitreous, pearly on cleavages.

Optical Class: Biaxial (-). $\alpha = 1.726(2)$ $\beta = 1.771(2)$ $\gamma = 1.780(2)$ $2V(\text{meas.}) = 50^\circ$

Cell Data: *Space Group:* $P\bar{1}$. $a = 5.638(3)$ $b = 5.827(3)$ $c = 6.692(2)$ $\alpha = 103.25(4)^\circ$
 $\beta = 104.37(3)^\circ$ $\gamma = 87.72(4)^\circ$ $Z = 2$

X-ray Powder Pattern: Ojuela mine, Mexico.

6.33 (10), 3.71 (10), 2.99 (9), 2.84 (9), 2.49 (8), 3.08 (7), 2.11 (7)

Chemistry:

	(1)	(2)
As ₂ O ₅	40.17	40.09
Fe ₂ O ₃	0.12	
FeO	0.45	
ZnO	56.22	56.77
H ₂ O ⁺	3.44	3.14
H ₂ O ⁻	0.00	
Total	100.40	100.00

(1) Ojuela mine, Mexico. (2) Zn₂(AsO₄)(OH).

Polymorphism & Series: Dimorphous with adamite.

Occurrence: A rare secondary mineral in the oxidized zone of some hydrothermal polymetallic base-metal deposits.

Association: Mimetite, adamite, ojuelaite, mapimite, "limonite" (Ojuela mine, Mexico); köttigite, adamite, smithsonite, wulfenite, chalcocite (Tsumeb, Namibia).

Distribution: From the Ojuela mine, Mapimí, Durango, Mexico. At Tsumeb, Namibia.

Name: From the Greek *para*, for *near*, and its dimorphous relation to *adamite*.

Type Material: The Natural History Museum, London, England, 1969,184; Harvard University, Cambridge, Massachusetts, 106376; National Museum of Natural History, Washington, D.C., USA, R9492, 106378, 107443, 112518, 125506.

References: (1) Switzer, G. (1956) Paradamite, a new zinc arsenate from Mexico. *Science*, 123, 1039. (2) (1956) *Amer. Mineral.*, 41, 958 (abs. ref. 1). (3) Hawthorne, F.C. (1979) Paradamite. *Acta Cryst.*, 35, 720–722. (4) Bennett, T.J. (1980) Crystal structure of paradamite. *Amer. Mineral.*, 65, 353–354.