

Palladobismutharsenide

Pd₂(As, Bi)

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Crystal Data: Orthorhombic. *Point Group:* $2/m\ 2/m\ 2/m$ or $mm2$. As irregular grains, to 165 μm .

Physical Properties: Hardness = n.d. VHN = 429–483, 450 average (25 g load).
D(meas.) = n.d. D(calc.) = 10.8

Optical Properties: Opaque. *Color:* In polished section, pale cream. *Luster:* Metallic.
Anisotropism: Weak to distinct; in air from gray to extinction, in oil varying from gray to brownish gray or brown at extinction.

R₁–R₂: (470) 53.6–54.5, (546) 52.1–53.0, (589) 53.6–54.6, (650) 55.8–56.1

Cell Data: *Space Group:* $Pm\bar{c}n$ or $P2_1cn$. $a = 7.504(4)$ $b = 18.884(1)$ $c = 6.841(7)$
 $Z = 20$

X-ray Powder Pattern: Stillwater complex, Montana, USA.
2.224 (100), 2.505 (90), 2.089 (60), 2.596 (40), 1.880 (40), 2.380 (30), 1.211 (30)

Chemistry:	(1)
	Pd 67.3
	As 19.1
	Bi 13.4
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	Total 99.8

(1) Stillwater complex, Montana, USA; by electron microprobe, corresponding to
 $\text{Pd}_{1.99}(\text{As}_{0.81}\text{Bi}_{0.20})_{\Sigma=1.01}$.

Occurrence: From heavy mineral concentrates (Stillwater complex, Montana, USA).

Association: Palladoarsenide, an undetermined (Pd,Te,Bi) mineral, calcite.

Distribution: In the Banded and Upper Zones, Stillwater complex, Montana, USA [TL].

Name: For the composition, palladium, bismuth, and arsenic.

Type Material: Royal Ontario Museum, Toronto, Canada, M34218; National Museum of Natural History, Washington, D.C., USA, 135407.

References: (1) Cabri, L.J., T.T. Chen, J.W. Stewart, and J.H.G. Laflamme (1976) Two new palladium–arsenic–bismuth minerals from the Stillwater Complex, Montana. *Can. Mineral.*, 14, 410–413. (2) Cabri, L.J., Ed. (1981) *Platinum group elements: mineralogy, geology, recovery*. *Can. Inst. Min. & Met.*, 126–127.