

Plumbopalladinite

Pd₃Pb₂

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Crystal Data: Hexagonal. *Point Group:* 6mm (synthetic). As grains, to 0.7 mm, in tiny aggregates.

Physical Properties: Hardness = ~5 VHN = 407–441 (50 g load). D(meas.) = n.d. D(calc.) = 12.36

Optical Properties: Opaque. *Color:* Bright white with faint rose tint in reflected light.

Pleochroism: Noticeable in air. *Anisotropism:* Strong, orange-brown to dark brown.

R₁–R₂: (400) —, (420) —, (440) 43.5–46.6, (460) 44.6–48.2, (480) 45.8–49.5, (500) 47.5–50.8, (520) 49.0–52.6, (540) 50.7–54.4, (560) 52.4–55.8, (580) 53.9–57.1, (600) 55.2–58.0, (620) 56.6–59.2, (640) 58.3–60.8, (660) 60.0–62.6, (680) 61.4–64.4, (700) 62.8–66.1

Cell Data: *Space Group:* P6₃mc (synthetic). a = 4.470 c = 5.719 Z = 1

X-ray Powder Pattern: Talnakh area, Russia.

2.30 (10), 2.23 (10), 1.207 (6), 3.20 (5), 1.302 (5), 1.760 (4), 1.602 (4)

Chemistry:

	(1)	(2)
Pd	42.35	43.51
Pb	55.12	56.49
Ag	2.07	
Cu	0.22	
Sn	0.47	
Bi	0.80	
Sb	0.08	
Total	101.11	100.00

(1) Talnakh area, Russia; by electron microprobe, average of four analyses; corresponds to (Pd_{2.86}Ag_{0.14})_{Σ=3.00}(Pb_{1.91}Bi_{0.03}Sn_{0.03}Cu_{0.02}Sb_{0.01})_{Σ=2.00}. (2) Pd₃Pb₂.

Occurrence: In Ni–Cu sulfide ores (Talnakh area, Russia).

Association: Cubanite, talnakhite, polarite, stannopalladinite, silver, sphalerite, galena (Talnakh area, Russia).

Distribution: From the Majak mine, Talnakh area, Noril'sk region, western Siberia, Russia [TL]. At the Stillwater complex, Montana, USA.

Name: For the chemical composition.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 72999.

References: (1) Genkin, A.D., T.L. Evstigneeva, L.N. Vyal'sov, I.P. Laputina, and N.V. Troneva (1970) Plumbopalladinite, a new mineral from copper–nickel ores. Geol. Rudn. Mestorozhd., 5, 63–68 (in Russian). (2) (1971) Amer. Mineral., 56, 1121 (abs. ref. 1).