

Crystal Data: Monoclinic. *Point Group:* 2/m. As irregular grains in chalcopyrite, long and veinletlike, vermiform, with curving boundaries, to 0.4 mm.

Physical Properties: *Cleavage:* Perfect in two directions. *Tenacity:* Brittle. Hardness = n.d. VHN = 277–357, 326 average (20 g load). D(meas.) = n.d. D(calc.) = 10.42

Optical Properties: Opaque. *Color:* Steel-gray; grayish white with slight rose tint in polished section. *Luster:* Metallic. *Anisotropism:* Moderate, dark gray with bluish tint to red-brown in air, dark gray to brownish gray with red tint in oil.
R₁–R₂: (400) 44.2–45.1, (420) 46.8–46.8, (440) 48.4–48.8, (460) 49.4–50.3, (480) 50.2–51.6, (500) 51.2–53.1, (520) 51.9–54.1, (540) 52.5–54.8, (560) 53.3–55.4, (580) 53.9–55.8, (600) 54.6–56.3, (620) 55.4–57.1, (640) 56.0–57.6, (660) 56.6–58.1, (680) 57.1–58.6, (700) 57.8–59.2

Cell Data: *Space Group:* P2/m. *a* = 9.25(1) *b* = 8.47(2) *c* = 10.44(2) β = 94.0°
Z = 18

X-ray Powder Pattern: Komsomol'skii mine, Russia.
2.14 (10), 2.21 (9), 2.60 (7), 1.955 (7), 2.35 (6), 2.31 (6), 2.13 (5)

Chemistry:	(1)	(2)	(3)	(4)
Pd	67.8	74.0	73.4	73.96
Pt		0.10	0.43	
Au	1.5	0.11	n.d.	
Ag	3.5	n.d.	n.d.	
Ni		n.d.	0.23	
Cu		0.34	n.d.	
Sb			0.04	
As	26.0	24.4	24.2	26.04
Te		1.3	0.54	
Total	98.8	100.25	98.84	100.00

(1) Komsomol'skii mine, Russia; by electron microprobe, corresponding to (Pd_{1.87}Ag_{0.09}Au_{0.02})_{Σ=1.98}As_{1.02}. (2) Stillwater complex, Montana, USA; by electron microprobe, corresponding to (Pd_{2.01}Cu_{0.02})_{Σ=2.03}(As_{0.94}Te_{0.03})_{Σ=0.97}. (3) Lac des Iles complex, Canada; by electron microprobe, corresponding to (Pd_{2.02}Pt_{0.01}Ni_{0.01})_{Σ=2.04}(As_{0.95}Te_{0.01})_{Σ=0.96}. (4) Pd₂As.

Occurrence: As minute grains in chalcopyrite in veins along the footwall of a Cu–Ni sulfide deposit (Talnakh area, Russia); from heavy-mineral concentrates (Stillwater complex, Montana, USA).

Association: Chalcopyrite, sperrylite, gold, kotulskite (Talnakh area, Russia).

Distribution: In the Komsomol'skii mine, Oktyabr Cu–Ni deposit, Talnakh area, Noril'sk district, western Siberia, Russia [TL]. At the Elatsite porphyry copper deposit, Srednogie zone, Bulgaria. From the Konttjarvi intrusions, northern Finland. In the USA, in the Banded and Upper Zones of the Stillwater complex, Montana. In Canada, at the Lac des Iles complex, Ontario. From Kambalda, 56 km south of Kalgoorlie, Western Australia. At the Onverwacht mine, on the Merensky Reef, Bushveld complex, Transvaal, South Africa.

Name: For PALLADIUM and ARSENIC in its chemical composition.

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

References: (1) Begizov, V.D., V.I. Meschankina, and L.S. Dubakina (1974) Palladoarsenide, Pd₂As, a new natural palladium arsenide from the copper–nickel deposits of the Oktyabr deposits. Zap. Vses. Mineral. Obshch., 103, 104–107 (in Russian). (2) (1975) Amer. Mineral., 60, 162 (abs. ref. 1). (3) Cabri, L.J., J.H.G. Laflamme, J.M. Stewart, J.F. Rowland, and T.T. Chen (1975) New data on some palladium arsenides and antimonides. Can. Mineral., 13, 321–335. (4) Criddle, A.J. and C.J. Stanley, Eds. (1993) Quantitative data file for ore minerals, 3rd ed. Chapman & Hall, London, 408.

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