Norilskite $(Pd,Ag)_7Pb_4$

Crystal Data: Hexagonal. *Point Group*: 32. As anhedral grains to ~400 μm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = ~ 4
VHN = 296-342, 310 average (20 g load). D(meas.) = n.d. D(calc.) = 12.99

Optical Properties: Opaque. *Color*: Orange-brownish pink in reflected light. *Streak*: Gray. *Luster*: Metallic.
Optical Class: Uniaxial (–). *Bireflectance*: Strong. *Pleochroism*: Strong, orange-pink to grayish orange-pink. *Anisotropism*: Strong, dull yellow to dull blue in partially crossed polars.
R_1-R_2: (470) 51.1-48.8, (546) 56.8-52.2, (589) 59.9-53.5, (650) 64.7-55.5

Cell Data: *Space Group*: $P3_121$. a = 8.9656(4) c = 17.2801(8) Z = 6

X-ray Powder Pattern: Synthetic analogue $(Pd_{6.25}Ag_{0.56})_{\Sigma=6.81}Pb_{4.00}$.
2.241 (100), 2.313 (91), 0.9626 (44), 1.308 (38), 1.212 (37), 3.220 (29), 1.610 (28)

Chemistry:	(1)
Pd	44.33
Ag	2.68
Bi	0.33
Pb	52.34
Total	99.68

(1) Talnakh deposit, Noril'sk district, Russia; average of 16 electron microprobe analyses; corresponds to $(Pd_{6.56}Ag_{0.39})_{\Sigma=6.95}(Pb_{3.97}Bi_{0.03})_{\Sigma=4.00}$.

Occurrence: Formed in a differentiated mafic intrusion.

Association: Polarite, zvyagintsevite, Pd-rich tetra-auricupride, Pd-Pt-bearing auricupride, Ag-Au alloys, (Pb,As,Sb)-bearing atokite, mayakite, Bi-Pb-rich kotulskite, sperrylite, pentlandite, cubanite, talnakhite.

Distribution: From the Mayak and Komsomolsky mines, Talnakh deposit, Noril'sk district, Russia.

Name: For the mining district in Russia that provided the first specimens.

Type Material: Department of Earth Sciences, Natural History Museum, London, England (BM 2015, 1) and the A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (4694/1).

References: (1) Vymazalová, A., F. Laufek, S.F. Sluzhenikin, and C.J. Stanley (2017) Norilskite, $(Pd,Ag)_7Pb_4$, a new mineral from Noril'sk-Talnakh deposit, Russia. Mineral. Mag., 81(3), 531-541. (2) (2017) Amer. Mineral., 102, 1965 (abs. ref. 1).