

Ferronickelplatinum

Pt₂FeNi

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Crystal Data: Tetragonal. *Point Group:* n.d. Intergrown with other platinum group minerals, as unrounded or slightly rounded, nodular grains up to 4.5 mm, but monomineralic areas do not exceed 0.15 mm.

Physical Properties: *Tenacity:* Ductile. Hardness = n.d. VHN = 381–592, 481 average (50 g load). D(meas.) = n.d. D(calc.) = n.d.

Optical Properties: Opaque. *Color:* Silvery white; in polished section, rosy cream. *Luster:* Metallic. *Anisotropism:* Weak.

R₁–R₂: (400) —, (420) 56.5, (440) 56.4, (460) 56.8, (480) 57.4, (500) 58.2, (520) 58.7, (540) 59.0, (560) 59.3, (580) 59.7, (600) 60.2, (620) 60.5, (640) 60.9, (660) 61.4, (680) 62.0, (700) 62.8

Cell Data: *Space Group:* n.d. *a* = 3.871(4) *c* = 3.635(5) *Z* = 1

X-ray Powder Pattern: Northern Pekul'nei River, Russia. 2.192 (10), 1.935 (5), 1.324 (4), 1.699 (3), 1.157 (3b), 1.092 (2b), 3.66 (1b)

Chemistry:	(1)	(2)
Pt	76.7	77.30
Ir	0.47	
Os		
Ru		
Rh		
Fe	10.7	11.07
Ni	11.0	11.63
Cu	0.34	
Total	99.21	100.00

(1) Northern Pekul'nei River, Russia; by electron microprobe, average of six analyses; corresponds to (Pt_{2.02}Ir_{0.01})_{Σ=2.03}Fe_{0.98}(Ni_{0.96}Cu_{0.03})_{Σ=0.99}. (2) Pt₂FeNi.

Polymorphism & Series: Forms a series with tulameenite.

Occurrence: In the heavy fraction of Quaternary alluvial deposits associated with ultramafics from an ophiolite belt (Northern Pekul'nei River, Russia);

Association: Isoferroplatinum, tetraferroplatinum, rutheniridosmine, laurite, irarsite, cooperite, sperrylite, hollingworthite, cherepanovite, chromite, olivine (Northern Pekul'nei River, Russia).

Distribution: From the placer of the Northern Pekul'nei River, Pekul'nei Range, eastern Chukot Peninsula, Russia [TL]. In the Naran massif, western Mongolia. At Goodnews Bay, Alaska, USA.

Name: For iron, FERRum, NICKEL, and PLATINUM in the composition.

Type Material: Mining Institute, St. Petersburg, Russia, 1306/1.

References: (1) Rudashevskiy, N.S., A.G. Mochalov, Y.P. Men'shikov, and N.I. Shumskaya (1983) Ferronickelplatinum, Pt₂FeNi, a new mineral species. *Zap. Vses. Mineral. Obshch.*, 112, 487–494 (in Russian). (2) (1984) *Amer. Mineral.*, 69, 1190–1191 (abs. ref. 1). (3) Pekov, I.V. (1998) Minerals first discovered on the territory of the former Soviet Union. *Ocean Pictures*, Moscow, 84–85.