

**Crystal Data:** Hexagonal. *Point Group:*  $\bar{6}m2$ . As irregular grains to 0.2 mm.

**Physical Properties:** *Cleavage:* n.d. *Fracture:* n.d. *Tenacity:* Brittle (~95 mol% Ni<sub>2</sub>P); ductile (> 95 mol% Ni<sub>2</sub>P). *Hardness* = n.d. VHN = 658 (20 g load). *D(meas.)* = n.d. *D(calc.)* = 7.30  
Non-ferromagnetic.

**Optical Properties:** Opaque. *Color:* Grayish white, white with a beige tint in reflected light.  
*Streak:* Gray. *Luster:* Bright metallic.

*Optical Class:* Weakly birefractant, non-pleochroic and weakly anisotropic.

*R<sub>1</sub>-R<sub>2</sub>:* (400) 41.0-40.2, (420) 42.2-41.1, (440) 43.2-42.4, (460) 44.5-43.5, (470) 45.1-44.2, (480) 45.7-44.8, (500) 47.1-46.1, (520) 48.3-47.3, (540) 49.6-48.3, (560) 49.9-48.5, (580) 51.6-49.9, (589) 52.1-50.3, (600) 52.6-50.8, (620) 53.4-51.4, (640) 54.0-51.9, (650) 54.3-52.1, (660) 54.5-52.3, (680) 55.0-52.6, (700) 55.5-53.0

**Cell Data:** Space Group:  $P\bar{6}2m$ .  $a = 5.8897(3)$   $c = 3.3547(2)$   $Z = 3$

**X-ray Powder Pattern:** Transjordan Plateau, Jordan.

2.211 (100), 2.028 (42), 1.926 (37), 1.697 (21), 1.1035 (20), 1.676 (18), 1.672 (18)

Chemistry:	(1)	(2)	(3)
Ni	67.80	60.55	79.12
Fe	10.20	18.16	
Co		0.26	
S		0.27	
P	21.50	20.53	20.88
Total	99.50	99.77	100.00

(1) Transjordan Plateau, Jordan; average electron microprobe analysis, corresponds to (Ni<sub>1.72</sub>Fe<sub>0.27</sub>)<sub>Σ=1.99</sub>P<sub>1.02</sub>. (2) Cambria meteorite; average electron microprobe analysis; corresponds to (Ni<sub>1.52</sub>Fe<sub>0.48</sub>Co<sub>0.01</sub>)<sub>Σ=2.01</sub>(P<sub>0.98</sub>S<sub>0.01</sub>)<sub>Σ=0.99</sub>. (3) Ni<sub>2</sub>P.

**Polymorphism & Series:** Complete solid solution with barringerite.

**Occurrence:** In a pyrometamorphic phosphide assemblage commonly confined to the interstices between calcined, unmelted sediments and paralavas (Daba-Siwaqa complex). Paralavas are sediments (chalks and marls) melted at the temperature beyond 1100 °C, yielding different types of remelted basic silicate rocks. In a meteorite (iron ungrouped, fine octahedrite), and likely in CM2 carbonaceous chondrites (Mighei group).

**Association:** Murashkoite, zuktamrurite, negevite, halamishite, pyrrhotite, troilite, hematite, magnetite, Cu-bearing trevorite, molybdenite (exsolution?) lamellae (Transjordan); troilite, chreibersite (Cambria meteorite).

**Distribution:** From the Daba-Siwaqa complex, Transjordan Plateau, Jordan. In the Cambria meteorite (iron ungrouped, fine octahedrite)

**Name:** After the *Transjordan* Plateau, Jordan, where the new mineral was discovered.

**Type Material:** Mineralogical Museum, Department of Mineralogy, St. Petersburg State University, Russia (19605).

**References:** (1) Britvin, S.N., M.N. Murashko, Y. Vapnik, Y.S. Polekhovskiy, S.V. Krivovichev, M.G. Krzhizhanovskaya, O.S. Vereshchagin, V.V. Shilovskikh, and N.S. Vlasenko (2020) Transjordanite, Ni<sub>2</sub>P, a new terrestrial and meteoritic phosphide, and natural solid solutions barringerite-transjordanite (hexagonal Fe<sub>2</sub>P-Ni<sub>2</sub>P). *Amer. Mineral.*, 105(3), 428-436.