Tsikourasite $Mo_3Ni_2P_{1+x}$ (x < 0.25)

Crystal Data: Cubic. *Point Group*: $\bar{4}$ 3*m*. As isolated grains to ~80 μm.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d. *Tenacity*: Brittle. Hardness = n.d. D(meas.) = n.d. D(calc.) = 9.182

Optical Properties: Opaque. *Color*: White-yellow in reflected light. S*treak*: n.d. *Luster*: Metallic.
Optical Class: *Bireflectance*: None. *Pleochroism*: None. *Anisotropism*: None.
R: (400) 54.6, (420) 54.9, (440) 55.2, (460) 55.5, (470) 55.7, (480) 55.8, (500) 56.1, (520) 56.4, (540) 56.7, (546) 56.8, (560) 57.0, (580) 57.3, (589) 57.5, (600) 57.6, (620) 58.0, (640) 58.3, (650) 58.5, (660) 58.6, (680) 58.9, (700) 59.2

Cell Data: Space Group: $F\bar{4}$ 3*m*. *a* = 10.8215(5) Z = 16

X-ray Powder Pattern: Calculated pattern.
2.083 (65), 2.209 (42), 2.083 (35), 1.913 (21), 1.275 (17), 1.275 (14), 2.705 (13)

Chemistry:

	(1)	(2)
Ni	23.90	26.44
Co	7.59	
Fe	1.18	
V	14.13	
Mo	44.16	64.84
P	7.97	8.72
S	0.67	.
Total	99.60	100.00

(1) Agios Stefanos mine, Othrys ophiolite complex, central Greece; average of 5 electron microprobe analyses supplemented by micro-Raman spectroscopy; corresponds to $(Mo_{1.78}V_{1.07}Fe_{0.08}Co_{0.07})_{\Sigma=3.00}(Ni_{1.57}Co_{0.43})_{\Sigma=2.00}(P_{0.98}S_{0.08})_{\Sigma=1.06}$. (2) $Mo_3Ni_2P_{1.25}$.

Occurrence: In a heavy mineral concentrate separated from podiform chromitite hosted in strongly serpentinized dunite from a mantle tectonite composed of harzburgite and minor intercalations of plagioclase-bearing lherzolite.

Association: Grammatikopoulosite, nickelphosphide, awaruite.

Distribution: From the Agios Stefanos mine, ~10 km south of Domokos, Othrys ophiolite complex, central Greece.

Name: Honors Basilios Tsikouras (b. 1965), associate professor, Faculty of Science, Physical and Geological Sciences, Universiti Brunei Darussalam, for his contributions to the ore mineralogy and mineral deposits related to ophiolites.

Type Material: Natural History Museum, University of Florence, Italy (3296/I).

References: (1) Zaccarini, F., L. Bindi, E. Ifandi, T. Grammatikopoulos, C. Stanley, G. Garuti, and D. Mauro (2019) Tsikourasite, $Mo_3Ni_2P_{1+x}$ (x < 0.25), a new phosphide from the chromitite of the Othrys ophiolite, Greece. Minerals, 9(4), 248. (2) (2020) Amer. Mineral., 105(10), 1600-1601 (abs. ref. 1).