Monipite MoNiP

Crystal Data: Hexagonal. *Point Group*: $\bar{6}\,m2$. As an irregular 0.002 mm grain.

Physical Properties: *Cleavage*: n.d. *Fracture*: n.d.. *Tenacity*: n.d.. Hardness = n.d. D(meas.) = n.d. D(calc.) = 8.27

Optical Properties: Opaque. *Color*: n.d. *Streak*: n.d.
Luster: n.d.
Optical Class: n.d..

Cell Data: *Space Group*: $P\bar{6}\,2m$. a = 5.861 c = 3.704 Z = 3

X-ray Powder Pattern: n.d.

Chemistry:

	(1)	(2)
Mo		51.69
Ni		31.62
P		16.69
Total		100.00

(1) Electron microprobe analyses, not given, corresponding to $(Mo_{0.84}Fe_{0.06}Co_{0.04}Rh_{0.03})_{\Sigma=0.97}(Ni_{0.89}Ru_{0.09})_{\Sigma=0.98}P$. (2) MoNiP.

Occurrence: As a single grain in the Allende meteorite, probably a secondary product of the oxidation of Mo-phosphides and/or P-rich alloys.

Association: Apatite, tugarovinite, a Ru-Mo-Ni metal grain.

Distribution: In a melilite-rich mantle of a B1 CAI (calcium aluminum rich inclusion) from the Allende meteorite.

Name: An acronym composed of the chemical symbols of the three essential components.

Type Material: National Museum of Natural History, Washington, D.C., USA, USNM 7554.

References: (1) Ma, C., J.R. Beckett, and G.R. Rossman (2009) Discovery of a new phosphide mineral, monipite (MoNiP), in an Allende type B1 CAI. 72nd Annual Meeting of the Meteoritical Society Abstracts. (2) (2010) Amer. Mineral., 95, 206 (abs. ref. 1).