Mavlyanovite Mn_5Si_3

Crystal Data: Hexagonal. *Point Group*: 6/*m* 2/*m* 2/*m*. Crystals prismatic, to 2 mm; in spherical to ovoid segregations, to 10 cm.

Physical Properties: *Cleavage*: Near perfect {0001}. *Fracture*: Conchoical. *Tenacity*: Brittle. Hardness = ~ 7 VHN = 1029-1098 (100 g load). D(meas.) = n.d. D(calc.) = 6.06

Optical Properties: Opaque. *Color*: Pale brownish-gray in reflected light. *Streak*: Dark gray. *Luster*: Metallic. *Anisotropism*: moderate; grayish-brown.
Optical Class: Uniaxial.
R_1-R_2: (470) 44.5-42.4, (546) 46.9-44.7, (589) 48.3-46.1, (650) 50.1-48.0

Cell Data: *Space Group*: *P6$_3$/mcm*. a = 6.8971(7) c = 4.8075(4) Z=2

X-ray Powder Pattern: Calculated.
2.044 (100), 1.972 (67), 2.258 (44), 1.991 (30), 2.230 (29), 1.307 (22), 1.401 (16)

Chemistry:

	(1)	(2)
Mn	70.84	76.52
Fe	6.12	
Si	22.57	23.48
Ti	0.15	
P	0.18	
Total	99.86	100.00

(1) Koshmansay river, Chatkal ridge, Uzbekistan; average of 19 electron microprobe analyses, corresponding to $(Mn_{4.66}Fe_{0.40})_{\Sigma=5.06}(Si_{2.91}Ti_{0.01}P_{0.02})_{\Sigma=2.94}$. (2) Mn_5Si_3.

Occurrence: In volcanic glass in a diamond-bearing lamproite diatreme, presumably of high temperature and pressure origin.

Association: Suessite, native iron, moissanite, diamond, an unnamed manganese silicicarbide, an unnamed manganese siliciphosphide; alabandite, khamrabaevite (as inclusions).

Distribution: Upper reaches of the Koshmansay river, Chatkal ridge, Uzbekistan.

Name: Honors Gani Arifkhanovich Mavlyanov (1910–1988) for his contributions to the geology of Uzbekistan.

Type Material: Geological Museum of the State Committee on Geology and Mineral Resources, Tashkent, Uzbekistan; Natural History Museum, London, England (catalog no. BM 2008, 31).

References: (1) Yusupov, R.G., C.J. Stanley, M.D. Welch, J. Spratt, G. Cressey, M.S. Rumsey, R. Seltmann, and E. Igamberdiev (2009) Mavlyanovite, Mn_5Si_3: a new mineral species from a lamproite diatreme, Chatkal Ridge, Uzbekistan. Mineral. Mag., 73, 43–50. (2) (2010) Amer. Mineral., 95, 205-206 (abs. ref. 1).