

Tianshanite**Na₂BaMn²⁺TiB₂Si₆O₂₀**

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Crystal Data: Hexagonal. *Point Group:* 6/*m*. Microcrystalline monomineralic aggregates, to 6 cm.

Physical Properties: *Cleavage:* {001}, distinct. *Tenacity:* Brittle. Hardness = 6–6.5
D(meas.) = 3.29 D(calc.) = [3.14]

Optical Properties: Transparent to translucent. *Color:* Pistachio-green. *Luster:* Vitreous.
Optical Class: Uniaxial (-). $\omega = 1.666$ $\epsilon = 1.653$

Cell Data: *Space Group:* P6/*m*. $a = 16.722(5)$ $c = 10.434(4)$ $Z = 6$

X-ray Powder Pattern: Dara-i-Pioz massif, Tajikistan.

4.19 (100), 3.18 (90), 3.47 (80), 2.803 (50), 2.419 (50), 10.5 (35), 3.89 (30)

Chemistry:

	(1)		(1)
SiO ₂	43.24	MgO	trace
TiO ₂	6.90	CaO	1.95
B ₂ O ₃	7.50	BaO	18.00
Fe ₂ O ₃	1.00	Na ₂ O	5.93
Ta ₂ O ₅	0.84	K ₂ O	2.12
Nb ₂ O ₅	4.14	H ₂ O ⁺	0.00
MnO	7.80	Total	99.42

(1) Dara-i-Pioz massif, Tajikistan; corresponds to (Ba_{0.97}K_{0.13})_{Σ=1.10}(Na_{1.58}Ca_{0.29}K_{0.24})_{Σ=2.11}(Mn_{0.91}²⁺Fe_{0.10}³⁺)_{Σ=1.01}(Ti_{0.72}Nb_{0.26}Ta_{0.03})_{Σ=1.01}B_{1.78}Si_{5.93}O_{19.96}.

Occurrence: In the central portions of alkalic pegmatites in syenite.

Association: Pyrochlore, astrophyllite, bafertisite, stillwellite, danburite, galena, titanite, calcite, datolite.

Distribution: From the Dara-i-Pioz massif, Alai Range, Tien Shan, Tajikistan.

Name: For the occurrence in the Tien Shan (Tien Mountains), Tajikistan.

Type Material: Mineralogical Museum, St. Petersburg University, St. Petersburg, 16249; A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 70146.

References: (1) Dusmatov, V.D., A.F. Efimov, V.Y. Alkhazov, M.E. Kazakova, and N.G. Mumyatskaya (1967) Tianshanite, a new mineral. Doklady Acad. Nauk SSSR, 177, 678–680 (in Russian). (2) (1968) Amer. Mineral., 53, 1426 (abs. ref. 1). (3) Malinovskii, Y.A., E.A. Pobedimskaya, and N.V. Belov (1977) Crystal structure of tianshanite. Doklady Acad. Nauk SSSR, 236, 863–865 (in Russian). (4) (1979) Mineral. Abs., 30, 217 (abs. ref. 3).