Taikanite $BaSr_2Mn_2^{3+}O_2Si_4O_{12}$

Crystal Data: Monoclinic. *Point Group:* 2. As equant grains, rarely elongated, to 1.6 mm; in aggregates of grains. *Twinning:* Observed in thin section.

Physical Properties: *Cleavage:* {001}, perfect. *Fracture:* Conchoidal. *Tenacity:* Brittle. Hardness = ~6 VHN = 831–1059 (100 g load). D(meas.) = 4.72 D(calc.) = 4.81

Optical Properties: Semitransparent. *Color:* Greenish black. *Luster:* Vitreous to greasy. *Optical Class:* Biaxial (+). *Pleochroism:* Strong; X = violet to black; $Y = Z$ = emerald-green. *Orientation:* $X = a$; $Y = b$; $Z \wedge c = 44°$; $X \wedge c = 46°$. *Dispersion:* $r > v$, strong. $\alpha = 1.775(3)$ $\beta = [1.792]$ $\gamma = 1.814(2)$ 2V(meas.) = 74°–80°

Cell Data: *Space Group:* $C2$. $a = 14.600(2)$ $b = 7.759(4)$ $c = 5.142(1)$ $\beta = 93.25(2)°$ Z = 1

X-ray Powder Pattern: Irnimi deposit, Russia.
2.912 (100), 2.832 (90), 2.569 (80), 3.270 (70), 1.946 (60), 3.440 (40), 1.718 (40)

Chemistry:

	(1)	(2)		(1)	(2)
SiO_2	27.17	32.50	MgO	0.14	0.00
Al_2O_3		0.09	CaO	0.46	0.29
Fe_2O_3		0.00	SrO	33.78	25.40
Mn_2O_3		20.59	BaO	18.43	18.90
MnO	19.42		Na_2O	0.18	0.06
PbO		2.10	K_2O		0.01
			Total	99.58	99.94

(1) Irnimi deposit, Russia; by electron microprobe, average of three analyses; corresponds to $Ba_{1.03}(Sr_{2.78}Ca_{0.07}Na_{0.05}Mg_{0.03})_{\Sigma=2.93}Mn_{2.34}Si_{3.86}O_{14}$. (2) Wessels mine, South Africa; by electron microprobe, corresponds to $(Ba_{0.93}Pb_{0.07})_{\Sigma=1.00}(Sr_{1.84}Ca_{0.04}Na_{0.02})_{\Sigma=1.90}Mn^{3+}_{1.96}(Si_{4.07}Al_{0.01})_{\Sigma=4.08}O_{14}$.

Occurrence: In hydrothermal manganese ores related to alkalic dikes intruding limestones and siliceous rocks (Irnimi deposit, Russia); in a bedded manganese deposit (Wessels mine, South Africa).

Association: Braunite, namansilite, strakhovite (Irnimi deposit, Russia); sérandite, pectolite, braunite, sugilite, hennomartinite, kornite (Wessels mine, South Africa).

Distribution: From the Irnimi manganese deposit, Taikan Mountains, Khabarovsk Territory, Russia. In the Wessels mine, near Kuruman, Cape Province, South Africa.

Name: For the occurrence in the Taikan Mountains, Russia.

Type Material: A.E. Fersman Mineralogical Museum, Academy of Sciences, Moscow, Russia, 84394.

References: (1) Kalinin, V.V., A.B. Dauletkulov, A.I. Gorshkov, and N.V. Troneva (1985) Taikanite – a new silicate of strontium, barium and manganese. Zap. Vses. Mineral. Obshch., 114, 635–641 (in Russian). (2) (1987) Amer. Mineral., 72, 226 (abs. ref. 1). (3) Yamnova, N.A., L.V. Kalacheva, D.Y. Pushcharovskii, and V.V. Kalinin (1992) Crystal structure of taikanite $Sr_2BaMn_2[Si_4O_{12}]O_2$. Kristallografiya (Sov. Phys. Crystal.), 37, 319–321. (4) Armbruster, T., R. Oberhänsli, and M. Kunz (1993) Taikanite, $BaSr_2Mn_2^{3+}O_2[Si_4O_{12}]$, from the Wessels mine, South Africa: a chain silicate related to synthetic $Ca_3Mn_2^{3+}O_2[Si_4O_{12}]$. Amer. Mineral., 78, 1088–1095.