

Crystal Data: Hexagonal. *Point Group:* 3m. As prismatic crystals, to 0.2 mm, and in sprays.

Physical Properties: *Cleavage:* None. *Fracture:* Uneven to subconchoidal. *Tenacity:* Brittle. Hardness = 7 D(meas.) = 3.23(3) D(calc.) = 3.26

Optical Properties: Transparent. *Color:* Dark brown to black. *Streak:* Dark brown.

Luster: Vitreous.

Optical Class: Uniaxial (-). $\omega = 1.760(5)$ $\varepsilon = 1.687(5)$ *Pleochroism:* O = yellow-brown, E = red-brown.

Cell Data: Space Group: R3m. $a = 16.101(3)$ $c = 7.327(2)$ $Z = 3$

X-ray Powder Pattern: Calculated pattern.

2.606 (100), 8.051 (58), 3.008 (58), 4.025 (57), 3.543 (50), 4.279 (46), 2.068 (45)

Chemistry:	(1)	(2)		(1)	(2)
SiO ₂	33.4	34.43	MgO	6.4	7.70
TiO ₂	0.05		CaO	1.21	
Al ₂ O ₃	16.6	19.48	Na ₂ O	2.12	2.96
B ₂ O ₃	[9.82]	9.97	K ₂ O	0.01	
FeO _{total}	26.4		<u>H₂O</u>	<u>[2.67]</u>	<u>2.58</u>
FeO	[3.97]		Total	101.27	100.00
Fe ₂ O ₃	[24.98]	22.88			

(1) Darasun gold deposit, Vershino-Darasunskiy, Transbaikalia, Russia; average of 10 electron microprobe analyses supplemented by Mössbauer spectroscopy, H₂O calculated for charge balance, FeO:Fe₂O₃ from Mössbauer data, B₂O₃ from stoichiometry; corresponds to $^X(\text{Na}_{0.73}\text{Ca}_{0.23}\square_{0.04})_{\Sigma=1.00}^Y(\text{Fe}^{3+}_{1.47}\text{Mg}_{0.80}\text{Fe}^{2+}_{0.59}\text{Al}_{0.13}\text{Ti}^{4+}_{0.01})_{\Sigma=3.00}^Z(\text{Al}_{3.23}\text{Fe}^{3+}_{1.88}\text{Mg}_{0.89})^T(\text{Si}_{5.92}\text{Al}_{0.08}\text{O}_{18})_{\Sigma=6.00}(\text{BO}_3)_3^V(\text{OH})_3^W[\text{O}_{0.85}(\text{OH})_{0.15}]_{\Sigma=1.00}$. (2) $\text{NaFe}^{3+}_3(\text{Al}_4\text{Mg}_2)(\text{Si}_6\text{O}_{18})(\text{BO}_3)_3(\text{OH})_3\text{O}$.

Mineral Group: Tourmaline-supergroup, oxy-tourmaline group.

Polymorphism & Series: Complete substitution series from oxy-schorl via oxy-dravite and bosiiite to povondraite; limited substitution series between oxy-schorl and bosiiite.

Occurrence: In a sulfide- and gold-bearing, sub-volcanic, hydrothermal quartz vein.

Association: Quartz, pyrite, oxy-dravite, dravite, gold, calcite, dolomite, arsenopyrite, chalcopyrite, pyrrhotite, tetrahedrite, sphalerite, galena.

Distribution: From the Darasun gold deposit, Vershino-Darasunskiy, Transbaikalia Krai, Eastern-Siberian Region, Russia.

Name: Honors Dr. Ferdinando Bosi (b. 1967), University of Rome La Sapienza, Italy, an expert on the crystallography and mineralogy of the tourmaline-supergroup minerals and the spinels.

Type Material: Natural History Museum, Vienna, Austria (N 9793) and the A.E. Fersman Mineralogical Museum, Russian Academy of Sciences, Moscow, Russia (94999).

References: (1) Ertl, A., I.A. Baksheev, G. Giester, C.L. Lengauer, V.Yu. Prokofiev, and L.D. Zorina (2016) Bosiiite, $\text{NaFe}^{3+}_3(\text{Al}_4\text{Mg}_2)(\text{Si}_6\text{O}_{18})(\text{BO}_3)_3(\text{OH})_3\text{O}$, a new ferric member of the tourmaline supergroup from the Darasun gold deposit, Transbaikalia, Russia. *Eur. J. Mineral.*, 28(3), 581-591. (2) (2017) *Amer. Mineral.*, 102, 466-467 (abs. ref. 1). (3) Bosi, F., F. Cámara, M. E. Ciriotti, U. Hålenius, L. Reznitskii, and V. Stagno (2017) Crystal-chemical relations and classification problems in tourmalines belonging to the oxy-schorl–oxy-dravite–bosiiite–povondraite series. *Eur. J. Mineral.*, prepublication draft.